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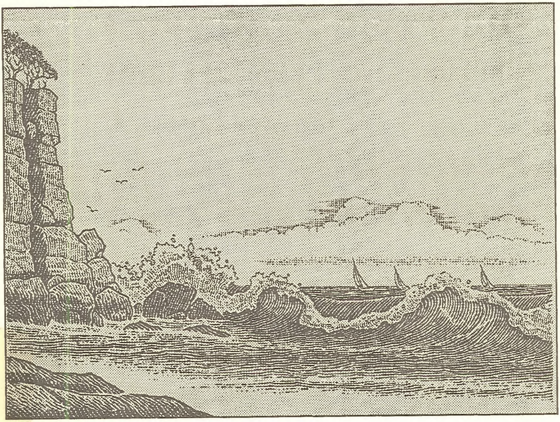
Bureau of Land Management

October 1994

Coos Bay District Office
1300 Airport Lane
North Bend, Oregon 97459

Coos Bay Shorelands

Draft Plan and Environmental Assessment



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As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OFFICE
1300 AIRPORT LANE
NORTH BEND, OREGON 97459-2000

IN REPLY REFER TO:

December 1, 1994

Dear Concerned Citizen:

Thank you for your interest in the Coos Bay Shorelands and in the development of the Coos Bay Shorelands Management Plan and Environmental Assessment. Enclosed within this bound document is the Draft Management Plan and Environmental Assessment and the Proposed Finding of No Significant Impact (FONSI). Our proposal is to manage the area under Alternative B, the Proposed Action. The analysis of the four alternatives, including the No Action, provide a range of management options for the Coos Bay Shorelands.

The plan and environmental assessment are the accumulated work of prior public comment and an interdisciplinary team (ID) of BLM specialists working with the management team of Tioga Resource Area. The Draft Management Plan includes management actions that the ID team feels represents the balanced mix of recreational opportunities and biological conservation actions. These combine to ensure that the future of the Coos Bay Shorelands will provide high quality recreation opportunities and unique biological habitats in a sustainable management framework.

Please take this opportunity to review the draft plan/environmental assessment and to express your views on how well the Draft Management Plan meets the goal of sustainable recreation opportunity and wildlife protection. If you have any suggestions, please tell us specifically how you would change it and why. Please include comments which: 1) are as specific as possible; 2) describe what you like about the management components; 3) identify new information which was overlooked in the preparation of the plan; 4) and provides factual corrections.

Two public meetings are scheduled for gathering input about the draft plan. The first meeting will be held at the Coos Bay BLM District Office on December 14, 1994 from 6:00 p.m. to 9:00 p.m., and the second meeting will be held in Roseburg at the Roseburg BLM District Office on December 15, 1994 from 6:00 p.m. to 9:00 p.m.

The comment period for this plan is 45 days, and comments must be received no later than January 16, 1995. Comments should be directed to Ron Andersen at the Bureau of Land Management, 1300 Airport Lane, North Bend, OR 97459-2000.

Your continued interest and participation are greatly appreciated.

Sincerely,

Daryl L. Albiston
Area Manager
Tioga Resource Area

Enclosure:
As noted

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EA No. OR126-93-07
Coos Bay Shorelands Plan

Lead Agency: U.S. Bureau of Land Management

Responsible Official:

Daryl Albiston
Tioga Resource Area Manger
Coos Bay District
1300 Airport Lane
North Bend, OR 97459

Proposal Abstract

The Coos Bay Shorelands Plan and Environmental Assessment prescribes management for approximately 1,600 acres of public domain land located on or adjacent to the North Spit of the Coos River. Four management alternatives are described. Each weighs the importance of biological and recreational values differently. Alternative A emphasizes recreational development combined with legally required levels of protection for special status species. Alternative B (Proposed Action) emphasizes a balanced mix of recreation and biological resource protection. Alternative C creates a variety of non-motorized recreational opportunities and produces extensive benefits for wildlife. The No Action Alternative would allow current use patterns to persist except where they directly conflict with laws, regulations and policies. The alternative development process considered adjacent land uses, county zoning, and potential future industrial uses of the Coos Bay Shorelands. This document is a combined draft plan and environmental assessment. It documents the planning process and provides rationale for recommended management actions.

USDI Bureau of Land Management, Coos Bay District, 1994. Environmental Assessment for the Coos Bay Shorelands Plan. September 1994. (OR120-93-07) North Bend, OR.

Finding of No Significant Impact
for the
Coos Bay Shorelands Environmental Assessment
OR126-93-07

The Bureau of Land Management, Coos Bay District, has analyzed four alternatives for the management of public domain lands within the area known as the Coos Bay Shorelands. These four alternatives consist of an array of management actions described in the referenced environmental assessment. These alternatives respond to an underlying need for the protection of resources in a time of increased recreational use. The guiding management objective was to increase the recreational appeal of the area while simultaneously providing expanded protection for the unique combination of biological resources present.

The guiding management objectives and alternatives were developed by an interdisciplinary team assembled by the BLM with both written and verbal input from the public.

The Proposed Action (Alternative B) resolves the following resource issues:

- Recreation conflict
- Recreation impact to biological resources
- New recreation opportunities
- Special status species management
- Management of both non-native plants and native special status species
- Land acquisition
- Law enforcement
- Education and interpretation.

The analysis of the Proposed Action finds that where management actions would cause additional impacts to occur (e.g., road building), these impacts are mitigated through regulation or limitation of activities elsewhere so that the net effect is one of no significant impact.

The estimated lifespan of the Proposed Action is ten years. Upon approval of this environmental assessment, the Proposed Action will be redrafted into an implementation plan. Implementation of regulatory changes (e.g., OHV use) will occur immediately; infrastructure improvements will occur as funding and staff become available.

The Coos Bay Shorelands Plan and Environmental Assessment will have no effect on wilderness, air quality, cultural resource values, prime or unique farmlands, wild and scenic rivers, Native American religious concerns, or solid/ hazardous waste. Further, no significant impact would occur to:

- The human environment or the socioeconomic region from this decision.
- Threatened or endangered species.
- Floodplains, wetlands and riparian area.
- Areas of critical environmental concern.
- Water resources.

FONSI Determination

This FONSI is in accordance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ). On the basis of the information contained in the Environmental Assessment and all other information available to me as is summarized above, it is my determination that none of the four alternatives constitute a major federal action significantly affecting the quality of the human environment and that this is a Finding of No Significant Impact. Therefore, an environmental impact statement is unnecessary and will not be prepared.

Daryl Albiston
Tioga Area Manager
1300 Airport Lane
North Bend, OR 97459

10/24/94
Date

For questions regarding the EA contact:

Ron Andersen
Resource Operations Manager
1300 Airport Lane
North Bend, OR 97459

(503) 756-0100

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Acronyms

ACEC - Area of Critical Environmental Concern
CBRA - Coastal Barrier Resources Act
CBS - Coos Bay Shorelands
COE - Corps of Engineers
DSL - Division of State Lands
EA - Environmental Assessment
EPA - Environmental Protection Agency
ESA - Endangered Species Act
FLPMA - Federal Land Policy and Management Act
FONSI - Finding of No Significant Impact
IPCB - International Port of Coos Bay
MA - Management Action
MOU - Memorandum of Understanding
NA - No Action (Alternative)
NEPA - National Environmental Policy Act
OCZM - Oregon Coastal Zone Management
ODA - Oregon Department of Agriculture
ODFW - Oregon Department of Fish and Wildlife
ODNRA - Oregon Dunes Natural Resource Area
OHV - Off-Highway Vehicles
RMP - Resource Management Plan
SCS - Soil Conservation Service
SRMA - Special Resource Management Area
USFWS - U.S. Fish and Wildlife Service

CHAPTER ONE

PURPOSE AND NEED FOR ACTION

Introduction

The Coos Bay Shorelands (CBS) is the southern tip of the Coos Dune Sheet that extends from Florence to the mouth of Coos Bay. Map 1-1 shows the location of the approximately 3,750 acres within the planning boundaries, including roughly 1,700 acres of public domain. In addition to the lands located on the North Spit of Coos Bay, the CBS planning boundaries include approximately 90 acres at Coos Head located above the south jetty of Coos Bay. The biological and recreational resources present are similar in character to those located on the Oregon Dunes National Recreation Area (ODNRA) that borders the CBS on the north.

The Bureau of Land Management has managed the CBS since 1984. In the Coos Bay BLM District Draft Resource Management Plan, the CBS is designated as a Special Recreation Management Area (SRMA), and the southern portion of the North Spit has been nominated as an Area of Critical Environmental Concern (ACEC).

The CBS will be managed as a predominantly natural area that conserves botanical, cultural and wildlife resource values while providing educational, interpretive and recreational opportunities for the benefit of local and regional visitors and economies. The objective of this plan is to expand recreational opportunity on the CBS while simultaneously managing for the protection and enhancement of its natural systems. A dual approach that seeks to reduce conflict both within the recreation community, and between recreationists and wildlife, is necessary to achieve this objective.

All recommended management actions are for lands currently under BLM administration. Where recommended actions affect other lands, the explicit intent of this document is to lay the framework for forging cooperative agreements or acquiring easements or title.

Nature of the Action

The Bureau of Land Management proposes to establish specific management objectives to provide for the long-term output of public goods and benefits from the Coos Bay Shorelands. This action is required by the Coos Bay District Draft Resource Management Plan (RMP). The management direction established in the Proposed Action (Chapter Two) is intended to provide guidance for the next 10-15 years. The Tioga Resource Area Manager, the deciding official for this action, will choose from an array of alternatives developed from a blend of public input and BLM staff expertise. Map 1-2 shows the planning boundaries of the Coos Bay Shorelands.

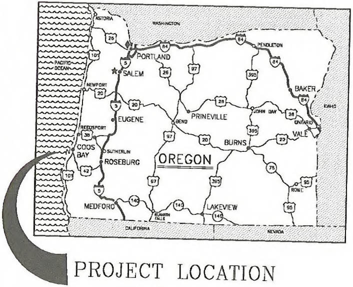
Underlying Need

Existing management guidelines for the Coos Bay Shorelands are based on the 1984 Amendment to Coos Bay District Management Framework Plan and to the Coos County zoning regulations that provide general guidance on permissible uses within the planning boundaries. Changes in recreational use patterns, resource conditions, and public values require management of specific resource components to ensure ecosystem health in the future and to ensure an adequate supply of amenity resources to meet current and future demand.

In addition, shifting local economies have created recreation opportunities and priorities. Recreational activity produces a variety of direct and indirect economic effects based upon the choices visitors make. Visitor satisfaction with an area influences length of stay, dollars spent, and reputation of the area as a worthy destination. This plan establishes the current recreational context and profile of the CBS and proposes actions that would assist the supply of recreational services and opportunities. It

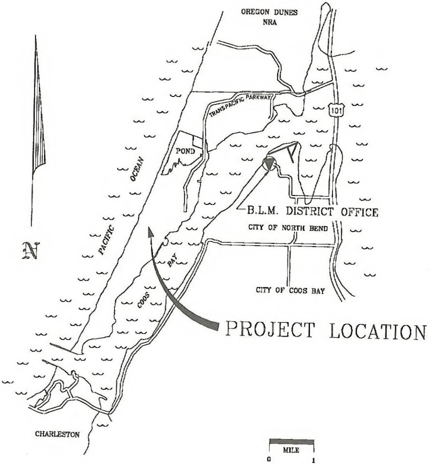
LOCALITY MAP: COOS BAY SHORELANDS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT

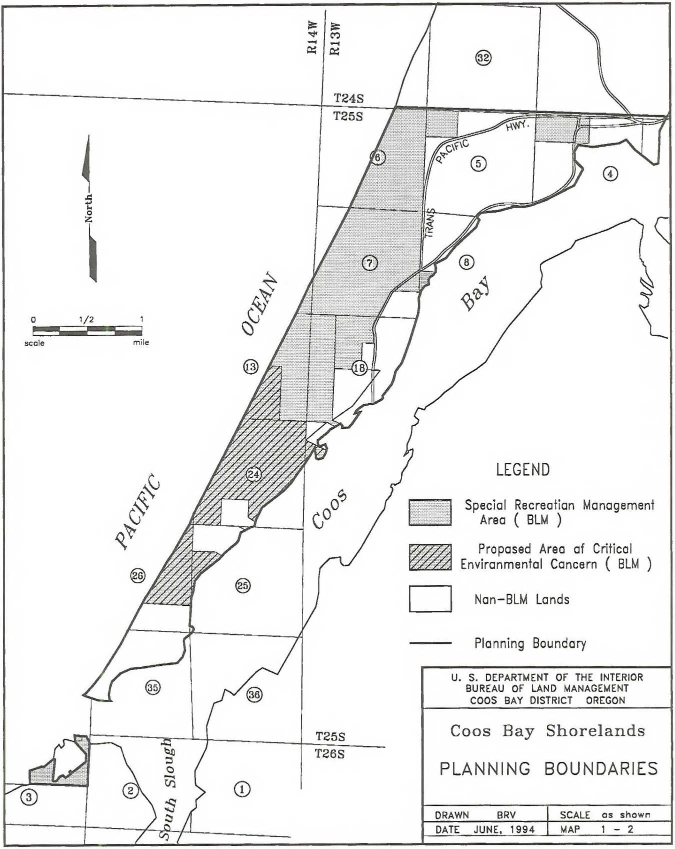


AREA REFERENCE MAP

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
5	INTERSTATE HIGHWAY	★	STATE CAPITOL
20	U.S. HIGHWAY	◆	BLM STATE OFFICE
140	STATE HIGHWAY	●	BLM DISTRICT OFFICE



MAP 1 — 1



LEGEND

▒	Special Recreation Management Area (BLM)
▨	Proposed Area of Critical Environmental Concern (BLM)
☐	Non-BLM Lands
—	Planning Boundary

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

Coos Bay Shorelands

PLANNING BOUNDARIES

DRAWN BRV	SCALE as shown
DATE JUNE, 1994	MAP 1 - 2

considers the travel/tourism industry in Oregon and the role the CBS could play as one of many premiere recreational destinations on the coast. Concomitant with this objective, the plan establishes conservation of natural systems within the CBS and management guidelines for these and other ACEC values (see below). The plan also identifies social data needs for optimal implementation and future revision of management objectives.

Another important underlying need is for barrier-free access to outdoor recreational opportunities in the area.

Area of Critical Environmental Concern Values

Portions of the CBS are proposed for designation as an Area of Critical Environmental Concern (ACEC) for the conservation of biological values. Examples of outstanding resource values are unique assemblages of flora and fauna and critical habitat for special status species. This plan specifically addresses the full spectrum of ACEC values through specific management actions addressing ocean and bay beach resources, sensitive species habitat, wildlife viewing opportunities, non-native vegetation, resource inventory and mapping, and educational and interpretive opportunities.

Legal Requirements

The Federal Land Policy and Management Act (FLPMA) requires that land use plans be prepared for all tracts of public lands (Sec. 202[a]). While the RMP provides compliance with this requirement by offering general guidance for public domain lands within the Coos Bay District, the intensive nature of recreation activity on the CBS requires detailed management analysis. FLPMA further requires that within ACECs priority be given to management of those values for which the ACEC was established (Sec. 202[c][3]). Since a portion of the CBS is proposed for ACEC status, a more detailed plan is necessary to address specific resource management concerns.

The National Environmental Policy Act (NEPA) requires the preparation of an analysis document on all actions potentially affecting the human environment. At this time, the nature of the action proposed on the CBS is such that preparation of an EA is sufficient to fulfill that mandate. This judgement results from consideration of both the context of the action and its intensity (40 CFR 1508.27). First, current use patterns on the CBS already produce high levels of impact. A principal objective of this plan is to reduce these impacts to increase the net social and biological benefit. Therefore, the plan as a whole can be viewed as a mitigative action. With the exception of Alternative A, the intensity of the actions for each alternative is low in terms of the NEPA Council on Environmental Quality regulations.

The CBS contains a variety of wetland resources. National wetland management guidance derives from the Clean Water Act, Executive Orders 11990 and 11998 (both concerning the management of wetlands), the Flood Security Act of 1985, and U.S. Fish and Wildlife Service (USFWS) "Classification of Wetlands and Deep-water Habitats of the United States." A technical manual for identifying wetlands was prepared by the USFWS, Army Corps of Engineers (COE), Environmental Protection Agency (EPA) and Soil Conservation Service (SCS) in 1989. It is currently being revised. This manual and supplemental rule defines wetland delineation criteria. Federal policy also includes the "no net loss" concept. BLM has a current Riparian-Wetlands Initiative, and a goal of restoring and maintaining BLM riparian-wetland areas, so that 75 percent or more of potential wetland areas are in proper functioning condition by 1997.

The variety of special status species on the CBS includes species which are officially listed as threatened or endangered by the Secretary of the Interior under the provisions of the Endangered Species Act (ESA), proposed for listing as threatened or endangered, candidates for listing as threatened or endangered, listed or proposed for listing by a state in a category implying potential endangerment or extinction, and designated by each State Director as sensitive. Special status species and their essential habitats will be managed consistent with the Endangered Species Act of 1973, current recovery plans, and BLM policy as outlined in Bureau Manual 6840.06 (Special Status Species Management).

The ESA requires federal agencies to use their authority to conserve threatened and endangered species. Section 7 has proved to be the most significant provision of the Act directing agencies to ensure their actions do not jeopardize the continued existence of listed species or destroy or adversely modify species' critical habitats. These requirements are fulfilled through consultation with the USFWS or the National Marine Fisheries Service (NMF).

In 1982, Congress passed the Coastal Barrier Resources Act (CBRA) in an effort to reduce wasteful expenditures of federal money spent on the development of coastal barriers. In general, the Act prohibits the expenditures of federal funds on the development or improvement of lands located within the Coastal Barriers System. The CBS is proposed for inclusion within this system; however, the Act also explicitly grants exceptions for projects related to the study, management, protection and enhancement of wildlife resources and recreational projects (Sec. 6a[6A]). All the actions within this document fall into these excepted categories.

A final set of legal mandates derive from the Rehabilitation Act of 1973. This Act requires all Department of Interior agencies to provide access for all publics to a representative set of experiences within any developed recreation setting. The CBS offers a variety of experiences to the public that includes ocean beach, estaurine, and dune recreation opportunities. Currently, of these three, only ocean beach opportunities are marginally accessible to all publics.

Consistency Statement

BLM planning regulations require that resource management plans be consistent with officially approved or adopted resource-related plans, and the policies and procedures therein, of the federal agencies, state and local governments and Native American entities with affected resources. The CBS Draft Plan and EA has been written to be consistent with all such plans, including the Coos Bay Estuary Management Plan, Coos County Zoning Ordinances, Oregon Coastal Zone Management (OCZM), and the Coos Bay District MFP as supplemented by the President's Forest Plan and the North Spit Plan Amendment, 1984. See Appendix B for further consistency documentation.

Public Involvement

Public involvement in the planning for the CBS began in 1989 when a Draft CBS Plan was released and BLM solicited public review. Input from this public review became the starting point of the current planning process. About the same time the Draft Plan was released, a land exchange proposal was generated by the International Port of Coos Bay (hereafter referred to as the Port). The purpose of the proposed exchange was to facilitate the siting of an industrial project on the North Spit on lands zoned future industrial in the Coos Bay Estuary Management Plan. The North Spit Plan Amendment to the Management Framework Plan (1984) acknowledged this zoning and subsequently agreed to pursue the Port's land exchange proposal. Public hearings were held and detailed comments on the costs and benefits of the land exchange were recorded. Some comments addressed the future of the CBS in general. All comments received are considered part of the current planning effort record and are on file at the district office.

In July 1992, planning for the CBS was resumed to produce a more detailed analysis. The 1989 draft was dismissed from consideration due to public input. An interdisciplinary team was assembled and issue scoping was reinitiated. A mailing list of over 200 individuals, organizations, agencies, and interested individuals was compiled, largely from comments on previous CBS actions. A November 1992 mailing requested additional scoping of issues and comments on a vision statement drafted by the team.

Alternatives were developed to address the issues and an open house was held in April of 1993. In response to additional comments and public input, the alternatives were modified as presented in this draft plan/EA. Following release of this draft plan and EA, an open house will be scheduled and a 45-day public comment period established to allow for document review and input submission. Input from all of these public reviews will be incorporated in the final plan.

Planning Records

All planning records, including files on public comments and minutes of interdisciplinary team meetings, are on file in the Coos Bay District Office. All phases of the planning process are documented and available for public review.

Using This Document

The primary purpose of any plan is to resolve management issues scoped during initial planning and public review stages. The issues described in Chapter One set the basic framework of this document. Chapter Two presents a reasonable array of alternatives by listing their management actions and supporting rationale. The second half of Chapter Two, entitled Analysis By Resource, looks at each issue established in Chapter One in terms of how well the array of alternatives provides for issue resolution.

Chapter Three, Affected Environment, provides baseline physical and social information needed to determine the effects of issue resolution. Chapter Three is arranged by resource and does not follow the issues directly. Its purpose is to provide a comprehensive profile of what is known about each affected resource on the CBS. Chapter Four tracks with the issues listed in Chapter One, providing detailed evaluation of the effects of the alternatives. Chapter Four provides the best comparison of each alternative in terms of how well each resolves the issues established in Chapter One. Each resource category is introduced with a discussion of the resource and concludes with specific resource issues that include consideration of interactions between affected resources.

Issues, Concerns and Opportunities

The following issues, concerns and opportunities on the CBS were identified through the scoping process involving written and verbal public comments, as well as specialist input. These issues and opportunities are grouped by resource value in the following discussion and similarly in the individual alternatives description of Chapter Two. The six resource values that have identified issues and concerns are:

- Recreation
- Wildlife Habitat
- Vegetation
- Land Tenure and Cooperative Agreements
- Education and Interpretation
- Law Enforcement

Recreation

What mix and level of recreational opportunities will be provided on the Coos Bay Shorelands?

The CBS provides roughly 1,600 acres of unconstrained recreation lands in a semi-primitive motorized and rural setting where the public engages in a variety of recreational activities that are not dependent on infrastructure.

Over the past several years, unconstrained recreational use has produced several management concerns. Current use patterns produce high levels of recreational conflict and impact other resources. These conflicts and impacts reduce the quality of visitor experience and the net social benefit. In other cases, the absence of signed destinations and conventional motorized access results in under utilization of the recreation and biological resource base far below what could be experienced without adverse effects to sensitive or unique resources.

A major concern is conflict between motorized and non-motorized forms of recreation. Acute conflicts are specifically identified among off-highway vehicle (OHV) users, wildlife viewers, equestrians, and firearm enthusiasts. Sometimes there is conflict between OHV use and other uses, such as hunting, mushroom and berry picking, dayhiking, clamming and crabbing. OHV use on wetlands has caused a variety of impacts to wetland resources.

Another aspect of the recreation issue is the proposed distribution of infrastructures, particularly conventional motorized uses. Infrastructure distribution, which influences visitation patterns, plays a critical role in managing recreational impacts. Under current management, recreational impact to wildlife resources and other recreation user groups is random, but often affects sensitive biological resources.

Moderate development of facilities will concentrate use in those areas best suited to withstand impact. Particularly important are recreational facilities that will reduce sanitation and mechanical impacts to vegetation. Human waste is both visually unattractive and biologically undesirable. It contaminates water supplies and attracts scavengers that often prey on other species. Currently, for the estimated 125,000 visits to the Shorelands each year, the only sanitary facilities are a comfort station installed in 1993 at the North Spit Boat Launch Facility. The impacts to vegetation from the lack of sanitation facilities fragment wildlife habitats and alter seral processes at random.

Infrastructure development increases public benefit by creating new recreational opportunities through increased access and conservation actions that would improve biological health on the CBS. These two management objectives will have positive economic effects by attracting new and repeat visitors from the large population of touring publics traveling the Highway 101 corridor. These publics represent important tourist dollars to the local economy.

Access to unique recreational resources is another management concern. Existing access patterns produce high impact to special status species and other sensitive plants and animals. Nonetheless, historic access patterns on the CBS have contributed to distinct recreational preferences among local users, both for activity and setting. Conservation of traditional recreation opportunities is desirable to the degree that these activities do not conflict with critical resource protection. Any resolution of conflicts or impacts must protect access to these resources to the greatest extent practicable.

This plan specifically addresses the following recreation issue questions:

- How will recreation be managed to reduce conflict between user groups? Current recreational uses on the CBS are often in conflict.
- What blend of new recreational infrastructure and regulatory guidelines is appropriate to concentrate impacts in resilient areas? High levels of impact to vegetation and wildlife have resulted from indiscriminate OHV use, the lack of sanitation facilities, and general activity patterns produced by unconstrained recreation on the CBS.
- How will new recreational infrastructure, regulation, and policy guidelines create new recreational opportunities for the general public? As a result of impacts and the lack of infrastructure, recreational opportunities on the CBS have not been optimized, even within the constraints of biological protection. Opportunities for conventional motorized users of public lands are particularly limited.

Wildlife Habitat

How will habitat for wildlife, including special status species, be managed on the CBS?

The combination of ocean, estuary, fresh-water wetlands, open sand, rocky headlands, and upland coniferous forest environments that are on or immediately adjacent to the CBS provide important habitat for an unusually rich and complex community of resident and migratory wildlife species. For some species, such as the threatened snowy plover and the great blue heron, the CBS provides both breeding and foraging habitat. Other species, such as the black brant, rely on these areas for important stop-over sites during spring migration. Conservation or improvement of natural habitats and the processes that contribute to their formation is a desirable management goal.

In the ACEC, preservation of ACEC values will occur to the greatest extent practicable within the context of providing reasonable recreation opportunities. Current recreational activities, most notably OHV use, produce varying degrees of impact, disturbance, and litter and waste, substantially impacting many wildlife species on the CBS. Successful nesting by snowy plovers is a special concern. This plan specifically addresses the following wildlife habitat issue questions:

- How will recreational activities and access be managed to protect wildlife species and their habitat on the CBS?
- How will wildlife habitats be managed on the CBS?
- How will habitat for special status species be managed on the CBS?

Vegetation

How will vegetation, including special status species and non-native vegetation, be managed on the CBS?

The vegetation of the CBS includes a wide variety of plant communities, ranging from fresh- and salt-water marshes, to sandy beaches and coniferous forests. Introduction of non-native plant species such as European beachgrass (*Ammophila arenaria*), gorse (*Ulex europaeus*), and scotch broom (*Cytisus scoparius*) in the last century has altered the vegetation on the CBS, contributing to many of the current natural resource concerns. The BLM recognizes that establishment of European beachgrass has altered recent historical geologic processes and that restoration of those processes is contingent upon beachgrass control. Management actions need to consider two remnant native plant habitats that exist on the CBS: salt marshes on the bay shoreline, and old-growth Sitka spruce stands adjacent to the old U.S. Life Saving Station.

Consideration also needs to be given to the two special status plant species occurring on the CBS: salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *palustris*), a Federal Candidate Category 2 species which needs more information to propose for listing as threatened or endangered under the Endangered Species Act; and sea-lavender (*Limonium californicum*) which is a BLM Assessment Species. Both occur in salt marshes and are currently being impacted by motorized vehicle access.

Also, the CBS is within the historical range of pink sandverbena (*Abronia umbellata* ssp. *breviflora*), a

Federal Candidate Category 2 species which is also listed by the State of Oregon as endangered. Some small amounts of its habitat still are present on the CBS. The plan specifically addresses the following vegetation issue questions:

- How will non-native vegetation (including European beachgrass, gorse, and scotch broom) be managed?
- What management is needed to protect habitats of special status species?

Land Tenure and Cooperative Agreements

What acquisitions, right-of-way agreements, easements, or other appurtenances of land tenure will be pursued to optimize resource management and provide the most public benefit?

Adjacent landowner management objectives may not be consistent with the Bureau's objectives. In particular, land ownership patterns on the CBS could limit or stop access to much of the public land (see Map 1-3). In other cases, resources located on non-public lands adjacent to the CBS have high recreational value. Acquisition of some of these lands may be in the public interest. Further agreements and rights-of-way, as well as a limited acquisition plan, should be established to protect and enhance public investment in recreational infrastructure on the CBS.

Education and Interpretation

What educational/interpretive themes are appropriate on the CBS and how will they be made available to the public?

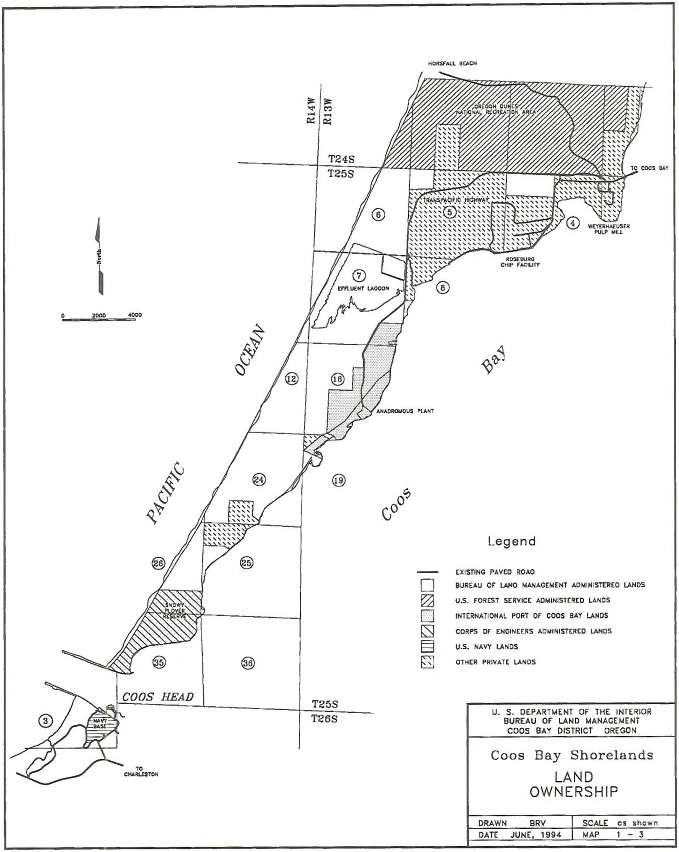
Besides reducing the need for regulation and fostering an increased appreciation of the natural environment, education and interpretation help the public to understand their important part in public land stewardship. The CBS offers outstanding opportunities for the public to study the natural world and gain insight into the relationship between ecosystem health, visitor ethics, cultural history and agency mission.

Law Enforcement

What level of enforcement and other management methods will be employed to ensure regulatory compliance?

OHV use—a traditional component of recreation on the CBS—has typically occurred in an unconstrained setting. Dispersed roadside camping has also occurred with little guidance from management on its allocation or distribution. Management initiatives that alter either of these conditions may be difficult to implement. Enforcement and/or concerted education programs would assist the establishment of new use patterns. The plan's specific issue question for law enforcement is:

- What level of law enforcement is appropriate for the kind of recreational setting desired?



U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

Coos Bay Shorelands

LAND
OWNERSHIP

DRAWN BRV	SCALE as shown
DATE JUNE, 1994	MAP 1 - 3

CHAPTER TWO

ALTERNATIVES INCLUDING THE PROPOSED ACTION

Introduction

This chapter is the core of the Draft Plan and Environmental Assessment. It describes the alternative development process and provides alternative details and resource management objectives by resource type. A summary of the environmental consequences is included under the actions of each alternative. This chapter is designed to track the issues and opportunities presented in Chapter One.

Four alternatives are proposed including No Action (as required by the Council on Environmental Quality: 36 CFR 219.12 [f7]). The No Action Alternative includes reasonably foreseeable management actions for the safeguard of critical biological resources.

Alternatives not Considered in Detail

Three actions were considered by the interdisciplinary team, but dropped from further analysis. The actions are listed below along with the rationale for their non-consideration:

- Implementing only actions consistent with restoration of natural processes including re-establishment of historical sand migration corridors and elimination of European beachgrass from the North Spit.

Rationale: This action was not analyzed in detail because of the industrial nature of the Port of Coos Bay. Restoration of natural processes would include re-establishment of historical sand migration corridors which would cause large quantities of sand to deposit in the bay. Not only are the actions necessary to perform this restoration very costly and of questionable scientific merit, but maintenance of the shipping channel in the bay would become prohibitively expensive.

- Elimination of recreational access within the ACEC to allow for maximum production of biological values.

Rationale: The ACEC designation, while placing a management emphasis on the conservation of biological resources, does not preclude nor even encourage elimination of other uses. The resources that make this area outstanding for biological conservation also greatly increase its value as a recreation destination.

- Recommended actions under the 1989 Draft Plan.

Rationale: The alternative presented in the 1989 Draft Plan is not consistent with the latest philosophies on the conservation of biological resources and on the appropriate level of recreational service provision in a limited geographic area with sensitive resources.

Actions Common to all Alternatives

Some management actions are recommended for all alternatives including No Action. Table 2-1 summarizes these common management actions, and the following text provides more detail. These actions are tiered to each of the issues listed in Chapter One. While each issue has management actions that are common to all alternatives, other actions tiered to these issues vary by alternative according to resource management emphasis

Table 2-1. Management Actions Common to All Alternatives

Monitoring
- Monitor output of all actions.
- Monitor all resources for population, habitat changes, and habitat acreage (including wetlands).
- Do compliance checks on new regulations and changes in activity patterns.

Recreation
- Install permanent road counters.
- Maintain continuous record of visitation volume.
- Periodically evaluate user satisfaction, preference, and economic impact.
- Implement visitor survey comparable to PARVS/CUSTOMER.

Wildlife
- Focus management on native species.
- Protect rare habitats and sties.
  - Endangered Species Act
  - Recovery plans for T&E species
  - BLM policy (Bureau Manual 6840.06)

Roads and Trails
- Avoid disturbance to wildlife and sensitive habitats including wetlands.
- Locate trails away from sensitive areas such as breeding and nesting sites.
- Locate observation points/blinds where needed to preclude wildlife disturbance.
- Plant screening vegetation where roads/trails pass near sensitive areas such as wetlands.

Wetlands
- Maintain natural ecological processes.
- Locate recreational activities away from wetlands.
- Conduct mitigation measures established in Henderson Marsh and North Spit Proposed Land Exchange Mitigation Plans.

Biological Inventory and Mapping
- Compile complete inventory of vegetation and wildlife communities.

Special Status Species
- Use guidance of:
  - Endangered Species Act
  - Recovery plans for T&E species
  - BLM policy (Bureau Manual 6840.06)
- Conduct 10 listed projects specific to snowy plover (see text).

Vegetation
- Maintain natural successional processes.
- Reduce, and in some cases eliminate, non-native species.
- Control gorse.
- Conduct cadastral survey of intertidal lands.
- Use vegetation manipulation to maintain or create needed habitat for special status species.

Table 2-1. Management Actions Common to All Alternatives (continued)

Land Tenure Adjustments

- Pursue following exchanges/purchases to benefit recreational and wildlife values on CBS.
    - Priority 1 - International Port of Coos Bay
    - Priority 2 - Altorfer property (approx. 57 acres)
    - Priority 3 - Barton property (approx. 51 acres)
    - Priority 4 - Weyerhaeuser (5 acres)

Education and Interpretation

- Develop interpretive programs emphasizing CBS biological resources.
- Implement "Leave No Trace" and "Tread Lightly" and similar low impact initiatives.

Law Enforcement

- Employ half-time law enforcement person for first 2 years of plan.
- Re-evaluate need for future staffing levels.

(see specifically numbered management actions in Detailed Description of Alternatives).

Common Management Actions for Monitoring

Monitor the output of all actions slated for implementation, especially those affecting special status plants and animals and their habitat. Monitor all resource conditions. When monitoring biological resources, include data collection on population changes, habitat acreage, and changes in the condition or quality of habitat, including wetlands acreage. For recreation monitoring, include compliance checks on all new proposed regulations and changes in activity patterns.

Monitoring programs are the only means to evaluate the effectiveness of implementation. The data collected is essential for revision of goals and objectives under changing resource conditions. Monitoring population trends of special status plant and animal species would measure the success of management programs designed to recover these species. Evaluation of regulatory compliance would indicate the appropriate level of law enforcement.

Common Management Actions for Recreation

Maintain a continuous record of visitation volume and periodically evaluate user satisfaction, preference, and economic impact to provide accurate feedback for plan implementation and to gauge changes in demand. This will ensure that ongoing implementation is responsive to changes in public demand.

Install permanent road counters to provide a continuous record of traffic. Validate traffic counts through implementation of a visitor survey comparable in depth and scope to PARVS/CUSTOMER, a Public Area Recreation Visitor Survey developed by the Southeast Forest Experiment Station, in Athens, Georgia. It is one of several current standards used to conduct visitor surveys on federal lands. Although a less thorough survey may be suitable, baseline data that provides a detailed profile of the current situation is desirable. Detail allows meaningful monitoring of future changes in user setting and activity preference. Less rigorous traffic validation surveys are recommended every five years for this purpose.

Current Bureau methods for estimating visitation are not responsive enough to accurately gauge use on a site-specific basis, nor are they sufficiently detailed to provide an optimal decision-making basis for the investment of public funds. Standard Bureau methods use the Recreation Management Information System (RMIS) which is based on a proration of the statewide estimate of recreational activity combined with the proportion of the state-wide inventory of particular resources (miles of trout stream for example) present within the geographic area of concern. There is no weight accorded to qualitative variables such as accessibility, aesthetics, or social and demographic considerations. Desegregating this data to site-specific levels of detail produces statistically unreliable estimates.

While common measures of recreation are available from secondary sources, variables such as primary activity, length of stay, point of origin, occupants per vehicle, and average daily expenditures fail to accurately describe activity on the CBS. This data inaccuracy is because the area is thought to be out of mainstream Oregon tourism at this time due to a high proportion of visitors believed to originate from the local area. Consequently, the key activity variables of these local users are believed to vary from those measured for the Oregon coast overall.

The best available information in terms of similarity of resources and physical proximity is data from the Oregon Dunes National Recreation Area (ODNRA), but it has limited confidence due to estimated demographic differences (Cordell et al. 1991). For example, ODNRA has a national profile which draws on a far larger and presumably more mobile and affluent user group.

Common Management Actions for Wildlife

Under all alternatives, manage the CBS consistent with the legal requirements of the Endangered Species Act. Manage the habitat of all threatened or endangered species present on the CBS to meet the objectives of recovery plans (see section on Special Status Species below). Design recreational facilities to minimize impacts to wildlife.

Focus wildlife habitat management on the CBS on native species, giving special emphasis to the protection of rare habitats and sites important to special status species. Non-native plants and animals would be considered undesirable, and in select cases management actions may be designed to reduce or eliminate them. In most habitats, maintain the natural successional processes to allow the habitats to change through time with minimal human influence, and discourage activities that may alter these processes. On select sites (such as snowy plover habitat areas), use vegetative manipulation to maintain or create specific habitat conditions preferred by species for which there are special management concerns or needs.

Common Management Actions for Location and Design of Roads and Trails

Plan roads and trails designated for recreational use to reduce disturbance to wildlife and protect sensitive habitats such as wetlands. Locate trails away from sensitive areas such as breeding or nesting sites. Locate observation points and/or blinds along trails at locations where disturbance to wildlife is a concern. Where roads or trails pass near sensitive areas such as wetlands, plant screening vegetation to reduce wildlife disturbance.

Any roads constructed on the foredune would be topographically screened to improve semi-primitive recreation opportunities and reduce disturbance to wildlife on the ocean beaches.

Common Management Actions for Wetlands

Manage wetland habitats on the CBS to maintain the natural ecological processes. Management would focus on reduction of impacts from recreational activities through siting and scoping of facilities. Under this type of management, the wetland habitats would continue to change through time from early seral stage wetlands to thickets and eventually conifer forests. Enhancement projects within existing wetlands previously identified in the Henderson Marsh Mitigation Plan or the proposed North Spit Land Exchange Mitigation Plan would remain subject to the legal parameters established in originating documents.

Common Management Actions for Biological Inventory and Mapping

Complete a detailed inventory of the vegetation and wildlife communities present on the CBS. Using mapping procedures similar to the methods of ODNRA (Pinto 1971), map the vegetative communities and wildlife habitats present on the CBS. This inventory would provide the baseline for future vegetation and habitat monitoring programs, as well as the information needed to develop habitat enhancement projects.

Common Management Actions for Special Status Species

Under all alternatives, the management of Special Status Species and their essential habitats would be consistent with the Endangered Species Act of 1973, recovery plans for threatened and endangered species, and BLM policy as outlined in Bureau Manual 6840.06 (Special Status Species Management).

Snowy Plover

Because of the importance of the CBS for the western snowy plover and the legal protection the bird receives under ESA, plover management is a central issue for all resources on the CBS. The plan would be amended to achieve the objectives identified in the Snowy Plover Recovery Plan when it is completed, and to comply with guidance established for management of critical habitat as designated by the USFWS. Interim management guidance for the snowy plover is being developed by the interagency Western Snowy Plover Working Team of which the BLM is an active member.

In March of 1993, 150 acres of beachgrass and non-native shrubs were burned to reduce predator habitat around the south spoils nesting area. An area of 50-100 acres was further scarified to reduce the rate of re-establishment of European beachgrass (see EA OR126-94-05, incorporated by reference). Most of this area was on COE lands; however, the benefits accrue to the population of snowy plovers that utilizes the CBS in general. This area would be maintained as additional habitat for the life of the plan.

A variety of projects for additional habitat maintenance, access management, monitoring and experimental habitat enhancement have been identified for implementation as listed below.

1. Remove invading European beachgrass hummocks on COE lands at the south spoils nesting area.

2. Use experimental saltwater irrigation, prescribed fire, and scarification on 30 acres of BLM and COE lands adjacent to the south spoils nesting area for the purpose of creating additional nesting habitat.
3. Fence newly-created habitat adjacent to the south spoils nesting area per memorandum of understanding (MOU) or interagency agreement.
4. Use prescribed fire periodically to remove vegetative cover on the southern portion of the North Spit as a means of reducing mammalian predator habitat and aiding habitat restoration/enhancement efforts.
5. Pursue access restrictions and possible closures of beach lands in cooperation with state agencies.
6. Continue to fund snowy plover nesting success monitoring program.
7. Implement a monitoring plan to evaluate habitat manipulation success.
8. Sign the ocean beach, newly-created habitat, and all nesting areas used by the snowy plover.
9. Pursue cooperative agreements, memorandum of understandings, and cost share programs among BLM, COE, ODFW and other parties affected by snowy plover recovery programs.
10. Review and periodically update the BLM's North Spit Snowy Plover Habitat Management Plan of June 1988.

Common Management Actions for Vegetation

Vegetation management actions common to all alternatives include treatments for gorse and a cadastral survey of intertidal lands.

Gorse Control

All occurrences of gorse (*Ulex europaeus*) are currently being removed from public lands within the planning boundaries. This program would continue. Gorse is classified as a "T" (Target) species by the Oregon Department of Agriculture (ODA) because of its capacity to dominate the landscape, its potential as a fire hazard, and the difficulty and expense in its control. Gorse currently occurs in only a few locations on the CBS; occurrences on these sites would be removed and monitored for re-establishment of new plants. Control methods involve both manual control and herbicides. Environmental Assessment OR120-90-12 and its Addendum FY93-96, hereafter incorporated by reference, discuss gorse control in greater detail. Adjacent landowners would be encouraged to remove occurrences on their property to prevent it from spreading to BLM-administered lands.

Cadastral Survey

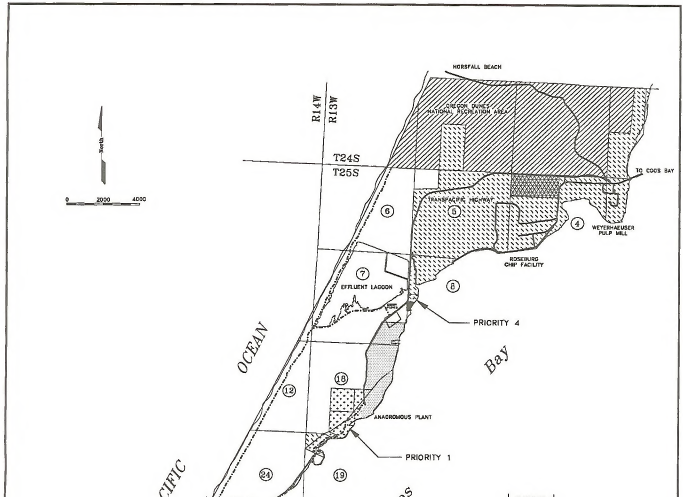
Conduct a cadastral survey to determine the mean high tide line on BLM-administered lands. The upland landowner administers land down to the mean high tide line. Below this point the land is managed by the Division of State Lands. A population of salt marsh bird's-beak occurs in the upper margins of the intertidal zone on the northern bay beaches, but it is unclear what proportion, if any, occurs above mean high tide line. Knowledge of where this line is would be the critical parameter in recognizing the responsible agency for special status species protection. This action would also provide necessary information for the development of a cooperative agreement as called for under Management Actions 18 B and C (see Alternatives B and C, Comparison of Alternatives).

Common Management Actions for Land Tenure Adjustments

Land tenure adjustment priorities (see Map 2-1) were derived by ranking the additional recreation and wildlife/botanical opportunities present on non-BLM parcels within the planning boundary. Consolidation of management activities and the safeguarding of public investment were additional criterion. This input was factored together to produce an overall land acquisition plan common to all alternatives. Acquisition priorities and rationale are provided below.

Priority 1

Coos County, Oregon International Port of Coos Bay - Parcels located adjacent to the terminus of the Trans-Pacific Parkway to ensure legal public access to the estaurine beaches of the CBS and other public lands within the ACEC.



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COOS BAY DISTRICT OREGON

Coos Bay Shorelands
LAND TENURE ADJUSTMENTS
(PROPOSED)

DRAWN BRV	SCALE as shown
DATE JUNE, 1994	MAP 2 – 1

Description: Portion of T. 25 S., R. 13 W., Sections 18 and 19; unquantified accreted lands attached to Patent No. 481590 in Section 19; the NE SW of Section 18; in Section 18, W. portion of Lot 3, W of the centerline of the Trans-Pacific Parkway; Lot 4, Section 18; and on unquantified accreted lands attached to Patent No. 93312; and all portions south and west of the centerline of the Trans-Pacific Parkway and the Anadromous facility.

Comments: Critical botanical values, critical recreation access, and high recreation values.

Priority 2

Altorfer, Edward H. - 56.80 Acres

Description: Lot 4, Section 25, T. 25 S., R. 14. W.

Comments: High recreation and wildlife values.

Priority 3

Barton, George W. and Crystal M. - 50.52 Acres

Description: Lot 1, Section 25, T. 25. S., R. 14 W.

Comments: High recreation and wildlife values.

Priority 4

Weyerhaeuser Company - 5 acres

Description: Section 8 adjacent to the North Spit Boat Ramp.

Comments: Recreation values.

Priority 5

Miscellaneous lands within the CBS planning boundaries have moderate-to-high wildlife and recreation potential. The BLM would consider acquisition of other lands as opportunities arise.

Disposal or Exchange Lands

The Coos Bay Draft RMP designates the CBS as a mix of Zone 1, 2 and 3 lands. These lands are described as high, moderate and low value retention lands, respectively. In particular, those portions of the CBS that are zoned future industrial under Coos County Zoning Ordinances and the 1984 MFP Amendment are identified as Zone 3 lands and are potentially available for disposal via exchange for lands in Zones 1 or 2. Disposal would be unlikely to occur if important recreation, wildlife, threatened or endangered species habitat, watershed and/or cultural values were identified during disposal clearance reviews.

Common Management Actions for Education and Interpretation

Although the CBS played a critical cultural and historical role in the pre-history and modern Euro-western history of the Coos Bay region, little evidence of significant events remains to be interpreted. Actions would be taken under this issue to develop interpretive prescriptions that emphasize the biological resources of the CBS. In addition to providing interpretation of biological resources from an ecosystem-based management perspective, specific educational initiatives that would be pursued include Leave No Trace, Tread Lightly, and information on the BLM's role as a land management agency and the visitor's helping role. General visitor orientation information would also be provided.

Leave No Trace is a minimum impact program that fosters a recreation resource ethic. This program is broadly applicable to all forms of dispersed recreation and would become a common feature of all Coos Bay District recreation initiatives. Tread Lightly is related to Leave No Trace by teaching a similar ethic tailored to the special demands of motorized use on public lands. Because OHV opportunities exist under three of the four alternatives , this is a high priority initiative. Also, because of its proximity to the ODNRA which is a major OHV area, the CBS would be visited by recreationists who are OHV users elsewhere. Finally, a better understanding by the public of the BLM's identity and function is consistent with agency initiatives and fosters trust. Information about the agency and its role in today's society would be presented under all alternatives. General visitor orientation is a standard feature at all managed recreation sites.

Common Management Actions for Law Enforcement

Under all alternatives except No Action, recreation use patterns would change significantly. Since the Coos Bay Shorelands has a large local constituency that is accustomed to historical use patterns, the initial stages of implementation must be monitored closely to ensure compliance. One law enforcement person (0.5 full time equivalent [FTE]) would be necessary during the first two years of plan implementation to assist in educating the public and to monitor compliance to new management guidelines. At the end of this two years, the need would be re-evaluated to determine future staffing levels.

Comparison of Alternatives

Table 2-2 provides a comparison of the plan's four alternatives by the management actions specific to each alternative. The table is followed by a detailed description of alternatives, each having a different management emphasis. Alternative A provides for the broadest array of recreational opportunities for conventionally motorized visitors. Alternative B (the Proposed Action) presents a balanced mix of actions designed to increase the overall recreational appeal of the CBS while at the same time offering greatly improved protection to habitat for wildlife and special status species. Alternative B strives to balance these often opposing agendas by offering a mix of recreation-related infrastructure improvements and biological resource protection measures. It is the Proposed Action for this document. Alternative C would produce the greatest amount of minimally disturbed wildlife and plant habitat and would provide the greatest degree of protection for ACEC resources. Under the No Action Alternative, proposals include only the minimum reasonably foreseeable actions required by law.

Detailed Description of Alternatives

The four alternatives are described below, first with a summary, then with a list of distinctive management actions specific to that alternative's management emphasis. Management actions are abbreviated for reference. MA18-A, for example, represents Management Action 18 under Alternative A. Since the management actions are numbered specific to each action (i.e., MA1 is Road Construction for all alternatives), there are gaps in the listing of management actions for those actions not implemented under an alternative.

The proposed infrastructure improvements under all alternatives often involve lands not currently administered by the BLM. Proposals were developed to provide the best recommendations for a mix of recreation opportunities within the limitations of wildlife protection or enhancement. Due to the mixed land ownership within the CBS, most proposals would not be possible without land tenure adjustments. The proposed infrastructure and other management actions would provide the basis for pursuing agreements, easements, or acquisitions. Actions that would have a substantial effect on non-public lands without voluntary adjustments in land tenure or formally adopted agreements between willing parties would not be pursued.

Description of Alternative A

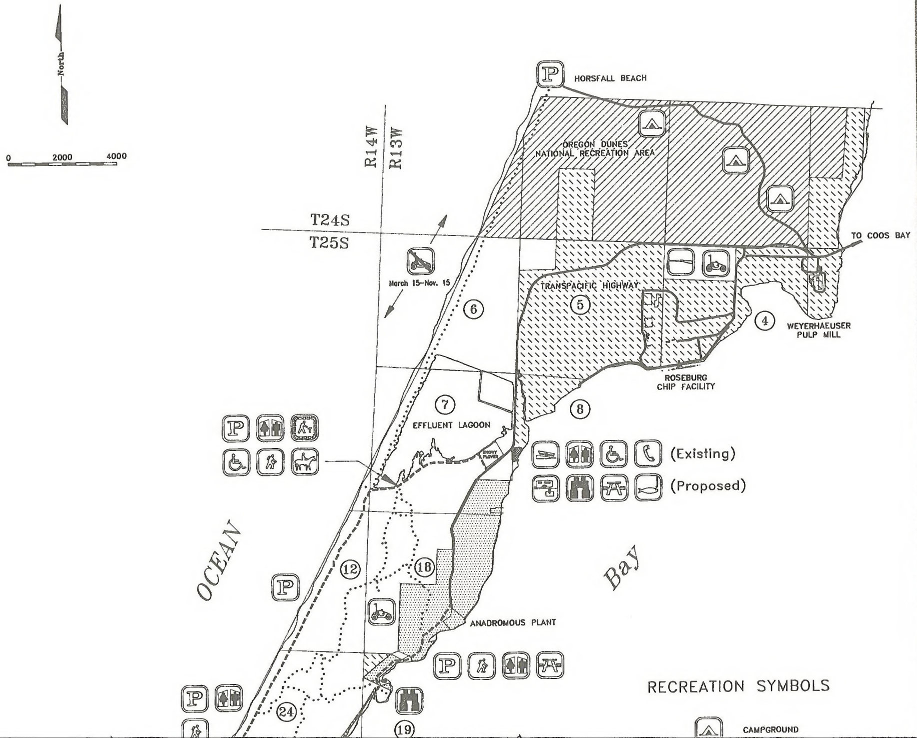
Summary of Alternative A

The overall objective of Alternative A is to maximize both OHV and conventional motorized recreational opportunities on the ocean beaches and 1,600 acres of public land available on the North Spit within the parameters of biological resource protection (see Map 2-2). Recreational infrastructure would be designed with the objective of minimizing conflict between divergent recreation user groups. Wildlife habitat management actions in excess of the legal requirements of the Endangered Species Act would be considered only if consistent with recreation management objectives. Because of this, some actions associated with biological resource management are not proposed under this alternative. See Alternative A Map 2-2 for reference purposes.

Management Action Proposals for Alternative A

MA1-A - *Road Construction (Foredune Improvements)*

Pave approximately 5.5 miles of additional access roads on the CBS. Construct a paved access road from the Trans-Pacific Parkway west along the south dike of the effluent pond to its junction with the foredune road and south from this point to the jetty. Construct an additional paved spur road to access the 30-unit campground in Section 25 (MA7-A). Equip the new road with facilities to enhance recreation including a six-foot wide, paved bike lane; dispersed wayside pullouts with ocean beach access; sanitation; and parking. Road design would include consideration of recreation setting objectives for the ocean beach (see MA5-A). This action forms a portion of the rationale for pursuing acquisition or easements from the COE and the Barton family on lands affected by this action.


North
0
2000
4000
R14W
R13W
T24S
T25S
HORSFALL BEACH
OREGON DUNES NATIONAL RECREATION AREA
TO COOS BAY
March 15–Nov. 15
TRANSPACIFIC HIGHWAY
⑤
⑥
④
WEYERHAEUSER PULP MILL
ROSEBURG CHIP FACILITY
⑦
⑧
EFFLUENT LAGOON
SNOWY PLOVER
(Existing)
(Proposed)
OCEAN
Bay
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ANADROMOUS PLANT
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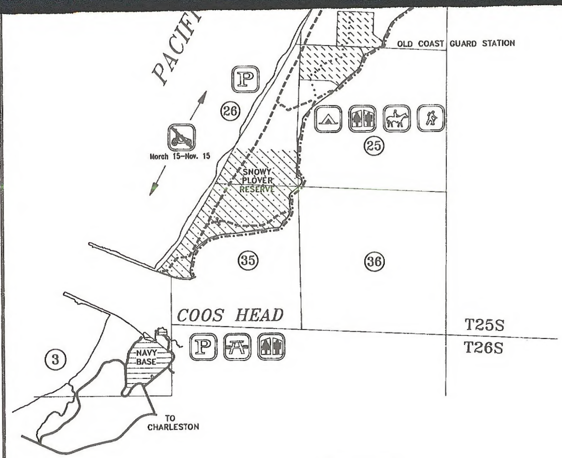
RECREATION SYMBOLS
CAMPGROUND



- FIREARMS
- FISHING
- HANDICAPPED
- HIKING TRAIL
- HORSE TRAIL
- INTERPRETIVE TRAIL
- LAUNCHING RAMP
- OFF ROAD TRAIL
- PARKING
- PICNIC AREA
- RESTROOMS
- TELEPHONE
- TRAILER SANITARY STATION
- WILDLIFE VIEWING AREA
- PROHIBITIVE ACTIVITY

Legend

——	EXISTING PAVED ROAD
– – –	PROPOSED ROAD WITH BIKE PATH
· · · · ·	NONMOTORIZED TRAILS
–·–·–	4WD BEACH ROAD
○–○	ADMINISTRATIVE GATE
☐	BUREAU OF LAND MANAGEMENT ADMINISTERED LANDS
▨	U.S. FOREST SERVICE ADMINISTERED LANDS
░	INTERNATIONAL PORT OF COOS BAY LANDS
▧	CORPS OF ENGINEERS ADMINISTERED LANDS
▤	U.S. NAVY LANDS
▧	OTHER PRIVATE LANDS

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

Coos Bay Shorelands

DRAFT PLAN
ALTERNATIVE A

DRAWN BRV	SCALE as shown
DATE JUNE, 1994	MAP 2 – 2

Table 2-2. Summary of Alternatives by Management Actions

Mgmt. Action	Alt. A	Alt. B Proposed Action	Alt. C	No Action
MA1 - Rd. Const.	5.5 mi.	1.7 mi.	1.7 mi.	N/A
MA2 - Rd. Const.	0.3 mi.	0.3 mi.	0.3 mi.	N/A
MA3 - OHV Status	Limited	Limited	Closed	N/A
MA4 - Bay Beach Access	Single-lane motorized access from Sec. 18 to Coast Guard station.	Open to non-motorized uses only north of old Coast Guard station, open to all uses south of this point.	Open to non-motorized uses only.	Open to all uses except for special status species rehab.
MA5 - Ocean Beach Access	Open year-round to non-motorized uses only. Open 9/15 - 3/15 to motorized uses.	Open year-round to non-motorized uses only.	Open year-round to non-motorized uses only.	Open to all uses. Voluntary closure estab. in dry sand 3/15 - 9/15.
MA6 - OHV Open Area	260-acre area in Secs. 13 and 18.	N/A	N/A	All land within planning boundary except as noted in MA5-NA.
MA7 - Campground Construction	30-unit facility in Sec. 25	N/A	N/A	N/A
MA8 - Undeveloped Camping	Prohibited within 200 ft. of paved roads.	Prohibited within 200 ft. of paved roads.	Prohibited within 500 ft. of paved roads.	N/A
MA9 - Day-Use Facilities	Secs. 7 & 18 limited. Expansion at boat ramp.	Secs. 7 & 18 limited. Expansion at boat ramp.	Secs. 7 & 18 limited. Expansion at boat ramp.	N/A
MA10 - Sanitation	Coos Head, Boat Ramp, Day-Use (Sec. 18) campground (Sec. 25), and foredune.	Coos Head, Boat Ramp, Day-Use (Sec. 18) and Sec. 7.	Coos Head, Boat Ramp, Day-Use (Sec. 18) and Sec. 7.	N/A
MA11 - RV Dump Station	Added at boat ramp.	N/A	N/A	N/A

Table 2-2. Summary of Alternatives by Management Actions (continued)

Mgmt. Action	Alt. A	Alt. B Proposed Action	Alt. C	No Action
MA12 - Equestrian Staging	Two areas (Secs. 7 and 25)	One area (Sec. 7)	One area (Sec. 7)	N/A
MA13 - Non-Motorized Trails	12 miles, trailheads in Secs. 7, 18 and 25.	12 miles, trailheads in Secs. 7, 18 and 25.	12 miles, trailheads in Secs. 7, 18	N/A
MA14 - Firearms Policy (Additional to applicable state and local laws)	No firearms discharging within 200 yds. of developed recreation facilities.	No firearms discharging within 200 yds. of developed recreation facilities.	No firearms discharging within 200 yds. of developed recreation facilities.	N/A
MA15 - Watchable Wildlife	Developed viewing areas in Secs. 7 (boat ramp) and 19.	Developed viewing areas in Secs. 7 (boat ramp) and 19.	Developed viewing areas in Secs. 7 (boat ramp) and 19.	N/A
MA16 - Barrier-Free Interpretive Loop	0.25-mi. in Sec. 7.	0.25-mi. in Sec. 7.	0.25-mi. in Sec. 7.	N/A
MA17 - Road Rehabilitation	Rehab. select roads with priority adjacent to sensitive biological areas & recreational facilities.	Rehab. select roads with priority adjacent to sensitive biological areas & recreational facilities.	Rehab. select roads with priority adjacent to sensitive biological areas & recreational facilities.	N/A
MA18 - Beachgrass Management	In areas that directly impact special status species.	In areas that directly impact special status species & in select areas for native plant species.	In areas that directly impact special status species & in select areas for native plant species.	N/A
MA19 - Scotch Broom Control	In areas that directly impact special status species.	In areas that directly impact special status species & in select areas for native plant restoration.	In areas that directly impact special status species & in select areas for native plant restoration.	N/A
MA20 - Coos Head	Establish parking. Provide picnic tables and sanitation facilities. Post day-use hours.	Establish parking. Provide picnic tables and sanitation facilities. Post day-use hours.	Establish parking. Provide picnic tables and sanitation facilities. Post day-use hours.	N/A

Table 2-2. Summary of Alternatives by Management Actions (continued)

Mgmt. Action	Alt. A	Alt. B Proposed Action	Alt. C	No Action
MA21 - Timber Cutting	No cutting, standing or down, except driftwood on ocean and bay beaches.	No cutting, standing or down, except driftwood on ocean and bay beaches.	No cutting, standing or down, except driftwood on ocean and bay beaches.	N/A
MA22 - Intertidal Management Agreement	N/A	Coordinate affected agencies for sustained protection of salt marsh bird's-beak.	Coordinate affected agencies for sustained protection of salt marsh bird's-beak.	N/A
MA23 - Salt Marsh Restoration	N/A	Restore salt marshes in areas impacted from historical access routes.	Restore salt marshes in areas impacted from historical access routes.	N/A
MA24 - Pink Sandverbena	N/A	Re-establish experimental population.	Re-establish experimental population.	N/A

Rationale for MA1-A

In the past, the lack of conventional motorized opportunities encouraged OHV use and produced a variety of impacts and recreation conflict over a large area. This proposed enhancement of conventional motorized access is an effective way to guide visitors away from fragile areas while still providing access for broad publics to unique recreational resources. It would also be expected to resolve conflict for most users by creating consistency between expectation and experience.

Channeling and regulation of uses would further reduce the likelihood of conflicting user groups attempting to utilize the same resource simultaneously. Channeling of visitors would also concentrate impact from recreational activity within a clearly designated corridor. This type of facility would expand recreational opportunities in the Bay area, and has potential to contribute to growth of the region as a recreation destination. This action is the core infrastructure proposal for this alternative and should be viewed as a part of the overall transportation plan, including modifications of OHV activity.

MA2-A - *Road Construction (Trans-Pacific Parkway Extension)*

This action is the same as MA2-B and C. Extend the Trans-Pacific Parkway by 0.3 miles into accreted lands attached to Patent Nos. 93312 and 481590 pending exchange, acquisition or easement. The purpose of the extension is to access the proposed day-use area (MA9-A). The siting of the proposed day-use area would be slightly beyond the existing pavement terminus where it could be visually screened from the industrial structures of Anadromous, Inc.. This action forms a portion of the rationale for pursuing acquisition or easements from the International Port of Coos Bay (IPCB) on lands affected by this action.

Rationale for MA2-A

The site proposed for improvement under this action is the most desirable location for a day-use facility on the North Spit due to aesthetics, accessibility and topographic features. This action would increase impact locally; however, it is an important part of the recreation opportunities offered under recreation improvement proposals. Because motorized use on the northern bay beaches would be retained under this alternative, this proposal would produce an overall net increase in impact from recreational activity. This effect varies for different alternatives due to the action's relationship to MA4-A, B and C.

MA3-A - *OHV Status*

Limit motorized use on the CBS to designated special sites, roads and trails (see Map 2-3). Areas open to motorized use would include:

- Paved access roads.
- A 260-acre freeplay area in Sections 13 and 18 (see MA6-A).
- The bay beach from the old U.S. Life Saving Station south to the north jetty (see MA4-A)
- Ocean beach from September 15 to March 15 (MA5-A).

This action forms a portion of the rationale for pursuing acquisition or easements from the Corps of Engineers Corps of Engineers and the International Port of Coos Bay on lands affected by this action.

Rationale for MA3-A

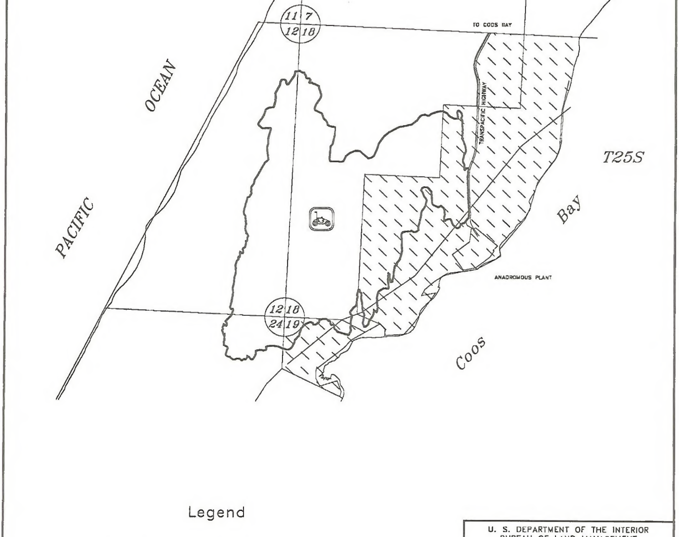
Concentrating OHV use on one open sand site would reduce physical impacts to wetlands and other wildlife habitats while still accommodating this user group. Additionally, concentrating OHV use at specified sites would reduce the level of disturbance to wildlife outside the high use recreational areas. This action is distinguished from MA6-A by designating all lands other than the 260-acre open sand area as limited or closed to OHV activity. This action equally targets impact and conflict from OHV uses.

MA4-A - *Bay Beach Access*

Construct post and cable fence to narrow the bay beach access to a single lane with pullouts, from the southern boundary of Section 18 to the historic U.S. Life Saving Station. This action forms a portion of the rationale for pursuing acquisition or easements from the IPCB on lands affected by this action.

Rationale for MA4-A

The population of salt marsh bird's-beak that occurs in this area is distributed across the principal access route in a narrow band defined by salinity gradients and inundation frequencies. This proposed management action would greatly reduce vehicle impacts to this species' bay beach salt marsh habitats by reducing the area subject to



Legend

═	EXISTING PAVED ROAD
—	OHV OPEN AREA
☐	BUREAU OF LAND MANAGEMENT ADMINISTERED LANDS
▨	OTHER PRIVATE LANDS

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

Coos Bay Shorelands

ALTERNATIVE A
OHV OPEN AREA

DRAWN BRV	SCALE as shown
DATE JUNE, 1994	MAP 2 - 3

mechanical disturbance by 75 percent. This action would also reduce mechanical disturbance to a population of sea-lavender that occurs on the site. This action would not, however, reduce disturbance to shorebirds, wading birds and waterfowl using important foraging sites along the bay shore.

MA5-A - *Ocean Beach Access*

Limit ocean beach access to non-motorized uses from the northern boundary of Section 6 south to the jetty during the snowy plover breeding season (March 15 to September 15). This action provides the rationale for pursuing agreement from Oregon State Parks to initiate proceedings on beach restrictions.

Rationale for MA5-A

This action would reduce potential for nest and brood disturbance and destruction (take) of the threatened snowy plovers which use ocean beaches. This action would also reduce disturbance to raptors, shorebirds, gulls, and other wildlife species that forage or rest on the ocean beaches.

Limitation on motor vehicles would further provide for ocean beach recreation in a non-motorized setting. This opportunity is currently lacking between Winchester Bay and the mouth of Coos Bay except for 0.25 mile located at Horsfall Beach.

MA6-A - *OHV Open Area*

Establish a 260-acre open sand area for unrestricted OHV use in Sections 13 and 18. Install signs and fencing to regulate vehicle use and contract for law enforcement and monitoring of this site. This action forms a portion of the rationale for relinquishment, easements or agreement from the Corps of Engineers on lands affected by this action.

Rationale for MA6-A

Recreation conflict resolution on the CBS is principally concerned with the mix of motorized and non-motorized uses. The most effective means to reduce conflict would be by either allocating suitable areas for OHV use or eliminating such uses where the resource base is non-suitable. The effect of this action would be to segregate recreational activities in conflict with each other. Wildlife disturbance in this area would remain at current levels or higher due to facilitated access on the northern end (MA2-A).

MA7-A - *Campground Construction*

Construct a 30-unit campground suitable for recreational vehicles with day-use and equestrian staging areas in Section 25 north of the proposed access route (MA1-A) and within reasonable walking distance of the bay. The campground design would include vegetative screening to reduce impacts to wildlife.

Rationale for MA7-A

This action would increase the local supply of developed camping opportunities by creating new camping opportunities in an estaurine setting. The mix of recreational opportunities available adjacent to the facility (including clamming, crabbing and fishing) would be significantly different from other local or regional campgrounds. This action would result in an increase in impacts to biological resources locally.

MA8-A - *Undeveloped Camping*

Undeveloped camping would not be permitted within 200 feet of all paved roads.

Rationale for MA8-A

Limiting undeveloped camping within 200 feet of paved roads would mitigate the potential impacts of roadside camping. This action would have a limited effect because most of the public lands on the CBS are not accessible by pavement. In the proposed development corridor (MA1-A), infrastructure is provided at selected sites to channel use. Unconstrained camping within this corridor is inconsistent with other resource goals and would substantially increase impact to biological resources from infrastructure development.

MA9-A - *Day-Use Facilities*

This action is the same as MA9-B and C. Construct a day-use facility in Section 18 south of Anadromous, Inc. The facility would include tables, grills, parking area, flush sanitation system, water, interpretive media, and a trailhead that ties into the interior trail system. This facility would be designed with the potential for conversion to a campground suitable for a variety of styles of motorized camping including recreational vehicles so that shifts in demand for this activity can be accommodated with the greatest planning efficiency. Vegetative screening, well-dispersed sites, and a suitable network of plumbing and electricity would be included in the design.

To mitigate visual impacts to wildlife, vegetative screening would be retained between sites within the facility, and between the facility and the bay. This part of this action provides a portion of the rationale for pursuing acquisition or easements from the IPCB on lands affected by this action.

A limited facility day-use site (tables, parking and sanitation) would also be established at the trailhead proposed for Section 7 (MA13-A).

Expansion of facilities at the North Spit Boat Ramp would also occur. A crabbing/fishing dock, picnic tables, grills, and interpretive/educational materials would offer opportunities that currently do not exist. This action provides a portion of the rationale for pursuing acquisition or easements from the Weyerhaeuser Company on lands affected by this action.

Rationale for MA9-A

This action would reduce impacts by concentrating day-use activities and providing a centralized location for the provision of facilities including a sanitation system, picnic areas, parking, and trailhead access. This action would provide a focal point for activity on the CBS, resulting in concentration of recreation-based impacts.

In Section 7, limited day-use facilities would encourage visitors to concentrate impact at a site less sensitive to disturbance. In the context of this alternative, providing day-use facilities in a variety of locations would reduce impacts from waste and sustained visitor occupation of single locations further down the North Spit.

For the proposed crabbing/fishing pier, conflict between boating and crabbing/fishing at the North Spit Boat Ramp indicates a demand for a separate facility. This facility would greatly increase the appeal of the CBS as a day-use area and provide an incentive for tourists to remain in the area for longer periods of time.

MA10-A - *Sanitation*

Build four sanitation stations on the CBS. Two vault toilets are proposed: the first at the trailhead facility in Section 7, and the second midway on the foredune road. Two flush facilities are also proposed: the first in the campground in Section 25, and the second in the proposed day-use facility in Section 18.

Rationale for MA10-A

Waste facilities would reduce the amount of litter and other waste present on the CBS and limit the unnatural food sources available for crows, ravens, gulls, skunks and other scavengers. In addition, adequate sanitation facilities would improve the area's aesthetics and decrease the health risk of surface disposal from human waste.

MA11-A - *RV Dump Station*

Add an RV dump station to the North Spit Boat Launch facility.

Rationale for MA11-A

A general lack of RV dump facilities exist in the North Spit/Horsfall Beach area. This action is coupled to the proposal for a campground in Section 25; it is further contingent upon engineering feasibility assessments, permitting, and other administrative considerations.

MA12-A - *Equestrian Staging Areas*

Construct two equestrian staging areas: the first adjacent to the proposed campground in Section 25, and the second in Section 7 at the trailhead on the south side of the south dike road.

Rationale for MA12-A

Equestrian use is traditional on the CBS and is relatively non-invasive. These opportunities would be preserved on the trail system proposed under MA13-A, B, and C, and NA. Designated staging areas are proposed to enhance this activity and to reduce dispersed impact caused by off-loading and outfitting of horses. This action would also reduce a major component of conflict by segregating equestrian uses from other recreation activities.

MA13-A - *Non-Motorized Trail Designations*

This action is the same as MA13-B and C. Construct approximately 12 miles of non-motorized trail through combining existing trail with new segments to produce a network of various loop sizes. Trails would be constructed to avoid sensitive wildlife resources while taking advantage of wildlife viewing opportunities. This action provides a portion of the rationale for pursuing acquisition or easements from the Corps of Engineers, the

International Port of Coos Bay, and the Barton and Altorfer estates on lands affected by this action.

Rationale for MA13-A

Planned trails would provide visitors the chance to experience a variety of wildlife viewing opportunities while channeling heavy use away from the most sensitive habitats. The net effect of this action, when taken in conjunction with OHV limitations, would be a reduction in impact from recreational activities.

MA14-A - *Firearms Use*

This action is the same as MA14- B and C. Discharging of firearms would not be permitted within 200 yards of all developed recreation facilities including, but not limited to, day-use areas, paved roads, sanitation facilities, trailheads, parking areas, boat ramps, and campgrounds.

Rationale for MA14-A

These restrictions are recommended to address public safety concerns and to reduce recreation conflict between firearm users and other recreationists.

MA15-A - *Watchable Wildlife*

This action is the same as MA 15-B and C. Construct a wildlife viewing platform on the dredge lobe in Section 19 oriented for shorebird and marine mammal viewing in the bay. The improvements at the North Spit Boat Ramp would also be developed to accommodate wildlife viewing. This action provides a portion of the rationale for pursuing acquisition or easements from the IPCB and the Oregon Division of State Lands (DSL) on lands affected by this action.

The Section 19 site would be low profile to reduce potential for disturbance and would feature a variety of interpretive materials. The boat ramp facility would feature barrier-free access and modified interpretive material for the visually and mobility impaired. A shorebird viewing guide would be produced and distributed that would direct people to this area. Access is to be non-motorized and require a 0.25-mile walk from the day-use facility in Section 18 (MA9-A, B and C).

Rationale for MA15-A

Wildlife viewing platforms would provide opportunities for visitors to view a variety of shorebirds, wading birds and waterfowl while concentrating use. By concentrating use, overall disturbance to wildlife would be reduced. In addition, these viewing platforms would provide a geographic center for wildlife interpretation and ecosystem education.

MA16-A - *Barrier-Free Interpretive Loop*

This action is the same as MA16-B and C. Construct a 0.25-mile barrier-free interpretive loop in Section 7. This interpretive loop would have a wetlands/biodiversity theme featuring innovative interpretation for mobility and visually impaired users.

Rationale for MA16-A

Consistent with the Americans With Disabilities Act and the BLM's Access Means Freedom initiative, a barrier-free interpretive loop is proposed to provide a portion of the representative experiences available on the CBS to all visitors.

MA17-A - *Road Rehabilitation*

This action is the same as MA17-B and C. Rehabilitate/revegetate selected roads and trails with rootwads, boulders or other structures. Mileage would be determined by a project- specific inventory at the time of implementation. Native shrub species would be planted on selected sites to speed recovery. This action provides a portion of the rationale for pursuing acquisition, easements, or agreements from a variety of affected parties.

Rationale for MA17-A

These actions would help reduce vehicle trespass into closed areas, protect sensitive wildlife habitats from vehicle damage, and reduce human disturbance to wildlife using these areas.

MA18-A - *European Beachgrass Management*

Management of European beachgrass would occur in areas which directly impact critical biological resources, such as special status species. This action would provide a portion of the rationale for pursuing acquisition, easements, or agreements from a variety of affected parties on lands affected by this action.

Rationale for MA18-A

Management of European beachgrass within the CBS is essential for maintaining habitat of the federally-listed western snowy plover. Control of European beachgrass would occur only in areas that are needed for the continued survival of this species. Methods to remove European beachgrass would be experimental and include use of heavy equipment, summer salt water irrigation, tillage and hand pulling. Monitoring would occur to determine the effectiveness of varying treatments.

MA19-A - *Scotch Broom Control*

Remove occurrences of scotch broom in areas which are in direct conflict with biological resources, such as special status species. This action would provide a portion of the rationale for pursuing acquisition, easements, or agreements from a variety of affected parties on lands affected by this action.

Rationale for MA19-A

Throughout the United States the spread of noxious weeds is reaching epidemic proportions. Scotch broom is a Class B noxious weed. Class B weeds have been found in Oregon for a long period of time and are expanding their range and increasing in density within their range. They regularly outcompete native vegetation, reducing resource values through declines in biological diversity and restrictions on other human activities as a result of habitat loss and subsequent crisis management of affected species. On the CBS, scotch broom may be impacting native plant communities and special status species.

MA20-A - *Coos Head Day-Use Area*

Establish a day-use picnic site on Coos Head to take advantage of the outstanding visual resources present. Interpretive material would tell the geologic story of the North Spit and the Oregon Dunes, both plainly visible from several points on Coos Head. Facilities would include vault toilets, tables, grills and water.

Rationale for MA20-A

This site has outstanding visual qualities; it offers the only unobstructed views of the North Spit, Oregon Dunes, the western reach of Coos Bay, and Empire. The site is currently served by well-maintained county roads. In addition, the site is clustered near the scenic attractions of Bastendorff Beach, Sunset Bay, Shore Acres and Cape Arago. The addition of this site would add to the overall appeal of this economically important stretch of Cape Arago Highway. All facilities would be designed to limit disturbance to sensitive cliff- dwelling avian species, where they occur.

MA21-A - *Timber Cutting*

Except for driftwood on ocean and bay beaches, no cutting of any timber, standing or down, would be allowed within the planning boundary.

Rationale for MA21-A

Consistent with the protection of ACEC values and the conservation of the natural settings within the SRMA, this policy would reduce the impact of undeveloped camping and day-use activities.

Description of Alternative B (Proposed Action)

Summary of Alternative B

The overall objective for this alternative is to simultaneously expand both recreation opportunities and wildlife protection. The recommended actions would reduce recreational conflict between motorized and non-motorized recreationists, and between recreationists and wildlife, by establishing a core non-motorized area within the proposed ACEC. Wildlife management actions in excess of the legal requirements of the Endangered Species Act would be balanced with recreation management objectives. This non-motorized area would also produce benefits to wildlife by mitigating current impact levels resulting from unconstrained recreation.

Under Alternative B, the character of the CBS that is sought is one where motorized access to traditional coastal and estaurine resources is maintained or improved, while still providing an array of wildlife protection measures. Like Alternative A, some actions expected to produce effects inconsistent with the goals of this alternative were eliminated. See Alternative B Map 2-4 for reference purposes.

Management Action Proposals for Alternative B

MA1-B - *Road Construction (Foredune Improvements)*

This action is the same as MA1-C. Pave approximately 1.7 miles of additional access roads on the CBS west of the Trans-Pacific Parkway. Construct a paved access road from the Trans-Pacific Parkway west along the south dike road to its junction with the foredune road and north to the midpoint of the western boundary of the effluent pond. Equip the new road with facilities to enhance recreation including a six-foot wide, paved bike lane; dispersed wayside pullouts with ocean beach access; sanitation; and parking.

Rationale for MA1-B

This action is the core of infrastructure proposals for the CBS and should be viewed as part of the overall transportation plan, including modifications of OHV activity. In the past, the lack of conventional motorized opportunities encouraged OHV use and produced a variety of impacts over a large area. This proposed enhancement of conventional motorized access in conjunction with restrictions on OHV uses (MA2, 3, 5 -B) is an effective way to guide visitors away from fragile areas while still facilitating critical access to the unique recreational resources present. This action also mitigates the loss of unconstrained OHV recreation opportunities by providing a broader public the opportunity to enjoy the public lands. This action would achieve a high level of conflict resolution for most users by creating consistency between expectation and experience and by providing the basis for segregation of uses on the CBS.

MA2-B - *Road Construction (Trans-Pacific Parkway Extension)*

This action is the same as MA2-A and MA2-C. For a description of this action, refer to MA2-A.

Rationale for MA2-B

This action is fundamental to balancing recreation opportunities with biological resource protection. Traditional recreation opportunities on the CBS are greatly curtailed under this alternative. This proposed pavement extension is a minimal impact method to mitigate for the loss of other recreational opportunities (MA4-B) by expanding accessibility to the diversity of recreation resources available within the ACEC. Through this action, a broader spectrum of the public (those individuals with conventional motor vehicles only) would have motorized access to bay beach resources. Linked to this action is closure of the northern bay beach to motorized uses. This action would provide a portion of the rationale for pursuing acquisition, easements, or agreements from the IPCB on lands affected by this action.

MA3-B - *OHV Status*

Limit motorized use on the CBS to designated roads and trails. Areas open to OHV use would include:

- The foredune road south of the proposed new pavement.
- A short spur road from the foredune road to the bay beaches in Section 25.
- The bay beach from the old U.S. Life Saving Station south to the north jetty (see MA4-B).

The foredune road and bay beach access spur would be straightened, graded and widened to facilitate recreational access in lieu of the preferred access route on the bay beaches.

Rationale for MA3-B

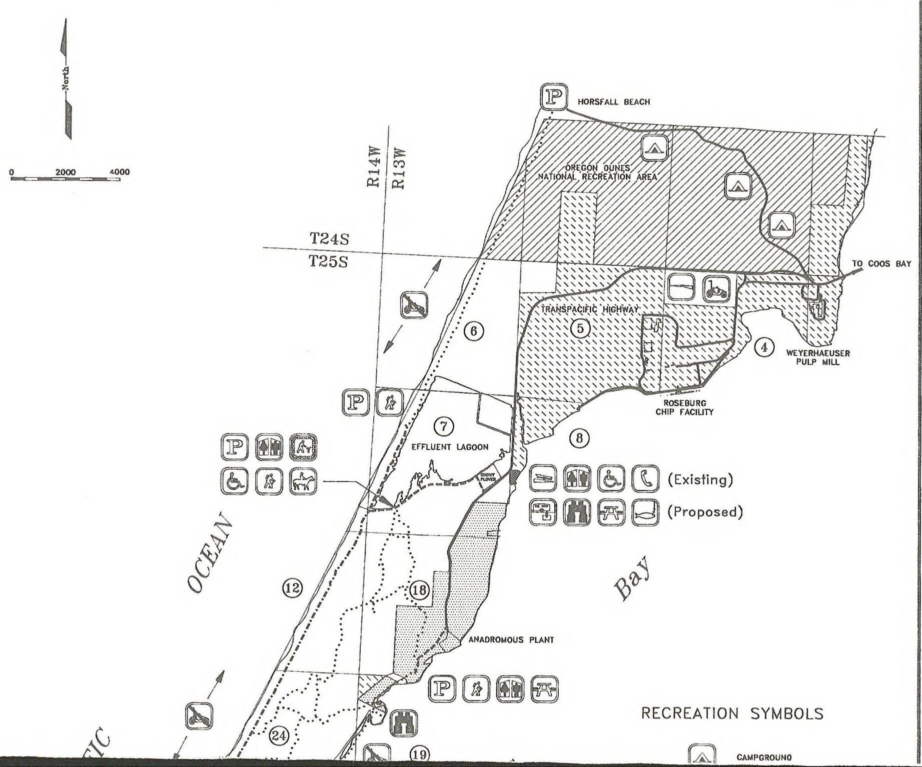
Limiting OHV use to designated roads and trails would reduce the level of disturbance to wildlife outside developed recreational areas. This action would contribute to the resolution of impacts from OHV uses and the conflict with other recreationists.

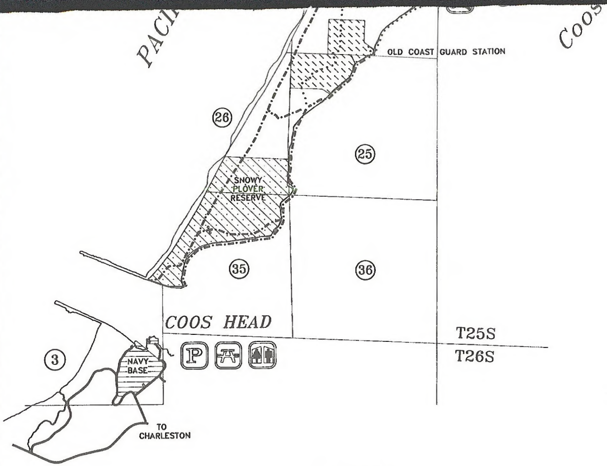
MA4-B - *Bay Beach Access*

This action is the same as MA4-C. Close the bay beach to motorized uses from the northern boundary of Section 19 south to the old U.S. Life Saving Station. This action would provide a portion of the rationale for pursuing acquisition, easements, or agreements from the IPCB on lands affected by this action.

Rationale for MA4-B

The population of salt marsh bird's-beak that occurs in this area is distributed across the principal access route in a narrow band defined by salinity gradients and inundation frequencies. This proposed management action would eliminate vehicle impacts to bay beach salt marsh habitats and reduce impacts to population of sea-lavender that is impacted by existing access routes in this area. It would further reduce disturbance to shorebirds, wading


North
0
2000
4000
R14W
R13W
T24S
T25S
HORSFALL BEACH
OREGON DUNES NATIONAL RECREATION AREA
TO COOS BAY
TRANSPACIFIC HIGHWAY
6
5
4
WEYERHAEUSER PULP MILL
ROSEBURG CHIP FACILITY
7
EFFLUENT LAGOON
8
SNOWY PLOVER
(Existing)
(Proposed)
OCEAN
Bay
12
18
ANADROMOUS PLANT
24
19
FIC
RECREATION SYMBOLS
CAMPGROUND



	FIREARMS
	FISHING
	HANDICAPPED
	HIKING TRAIL
	HORSE TRAIL
	INTERPRETIVE TRAIL
	LAUNCHING RAMP
	OFF ROAD TRAIL
P	PARKING
	PICNIC AREA
	RESTROOMS
☎	TELEPHONE
	TRAILER SANITARY STATION
	WILDLIFE VIEWING AREA
╲	PROHIBITIVE ACTIVITY

Legend

——	EXISTING PAVED ROAD
— — —	PROPOSED ROAD WITH BIKE PATH
· · · · ·	NONMOTORIZED TRAILS
—·—·—	4WD BEACH ROAD
o—o	ADMINISTRATIVE GATE
☐	BUREAU OF LAND MANAGEMENT ADMINISTERED LANDS
▨	U.S. FOREST SERVICE ADMINISTERED LANDS
▒	INTERNATIONAL PORT OF COOS BAY LANDS
▧	CORPS OF ENGINEERS ADMINISTERED LANDS
▤	U.S. NAVY LANDS
▧	OTHER PRIVATE LANDS

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

Coos Bay Shorelands

DRAFT PLAN
ALTERNATIVE B
PROPOSED ACTION

DRAWN BRV	SCALE as shown
DATE JUNE, 1994	MAP 2 – 4

birds and waterfowl using important foraging sites along the bay shore.

This action compares to MA4-A (which has a 75% reduction in mechanical disturbance) by eliminating all mechanical disturbance to salt marsh habitats on the bay beach, and by eliminating audio-visual disturbance to wildlife that nest, forage and rest on the bay beaches north of the old U.S. Life Saving Station.

MA5-B - *Ocean Beach Access*

Limit ocean beach access to non-motorized uses from the northern boundary of Section 6 south to the jetty. This action would be taken in conjunction with beach closures recommended by ODNRA for the area south of Horsfall Beach. Access points that link the foredune to the ocean beaches would be eradicated or obstructed, as feasible. The remaining legal access to the ocean beach would occur at the North Jetty. Initially, this would be signed and monitored for compliance. In the absence of compliance, fencing would be erected and more rigorous enforcement provided. This action provides the rationale for pursuing agreement from Oregon State Parks and Recreation (OSPR) to initiate proceedings on beach restrictions.

Rationale for MA5-B

This action would reduce the threat of nest or brood destruction for beach-nesting snowy plovers. It would also reduce disturbance to raptors, shorebirds, gulls and other wildlife species using the beach. Limitation on motor vehicles would provide for ocean beach recreation in a non-motorized setting, which is currently lacking between Winchester Bay and the mouth of Coos Bay except for 0.25-mile located at Horsfall Beach. The 0.25-mile area is too limited in size to remove recreationists from the sights and sounds of motor vehicles. This action differs from MA5-A by proposing restrictions on motorized beach use throughout the year, rather than seasonally. This additional restriction is designed to enhance beach foraging habitat year round and to preserve the recreation setting.

MA8-B - *Undeveloped Camping*

This action is the same as MA8-A. Undeveloped camping would not be permitted within 200 feet of all paved roads.

Rationale for MA8-B

Refer to rationale under MA8-A.

MA9-B - *Day-Use Facilities*

This action is the same as MA9-A. Day-use facility development would occur in Sections 7 and 18, and additional enhancements would occur at the North Spit Boat Launch. This action would provide a portion of the rationale for pursuing acquisition, easements, or agreements from the IPCB on lands affected by this action.

Rationale for MA9-B

Refer to rationale under MA9-A.

MA10-B - *Sanitation*

This action is the same as MA10-C. Three sanitation stations would be built on the CBS. Two stations would be vault-style toilets with one located at the trailhead facility in Section 7, and the other at the end of the pavement on the foredune road. One flush facility would be constructed at the proposed day-use facility in Section 18. This action would provide a portion of the rationale for pursuing acquisition, easements, or agreements from the IPCB on lands affected by this action.

Rationale for MA10-B

Refer to rationale under MA10-A.

MA12-B - *Equestrian Staging Areas*

This action is the same as MA12-C. Construct one equestrian staging area in Section 7 at the trailhead on the south side of the south dike road.

Rationale for MA12-B

Equestrian use is traditional on the CBS and is relatively non-invasive. These opportunities would be preserved on the trail system proposed under MA13-A, B, C, and NA. Designated staging areas are proposed to enhance this activity and reduce dispersed impact caused by off-loading and outfitting of horses. This action would also aid in segregating equestrian uses from other recreation activities, thus reducing a major component of conflict. No staging area is proposed for Section 25 (MA12-A) because this alternative does not provide for conventional motorized access to this site.

The precedent of equestrian use on the CBS is given different consideration from the precedent of motorized uses. The reason for this consideration difference is that equestrian use produces a lower level of recreational conflict and biological impact than off-highway motorized activities.

MA13-B - *Non-Motorized Trail Designations*

This action is the same as MA13-C. Refer to MA13-A for a description of this action.

Rationale for MA13-B

Planned trails would provide visitors the chance to experience a variety of wildlife viewing opportunities on signed and maintained facilities. When evaluated in light of concurrent restrictions on motorized uses, this action would substantially reduce impact to wildlife. This action would provide a portion of the rationale for pursuing acquisition, easements, or agreements from the Corps of Engineers, the International Port of Coos Bay, and the Barton and Altorfer estates on lands affected by this action.

MA14-B - *Firearms Use*

This action is the same as MA14-A. Discharging of firearms would not be permitted within 200 yards of recreational facilities.

Rationale for MA14-B

These restrictions are recommended to reduce public safety concerns and to reduce recreation conflict between firearm users and other recreationists.

MA15-B - *Watchable Wildlife*

Refer to MA15-A for a description of this action. The only difference would be the absence of motorized access for the proposed site in Section 19. A 0.25-mile walk from the proposed day-use facility in Section 18 (MA9-A, B, and C) would be required. This action is the same as MA15-C. This action would provide a portion of the rationale for pursuing acquisition, easements, or agreements from the IPCB on lands affected by this action.

Rationale for MA15-B

Refer to MA15-A for the rationale for this action.

MA16-B - *Barrier-Free Interpretive Loop*

Refer to MA16-A for a description of this action. This action is the same as MA16- C.

Rationale for MA16-B

Refer to MA16-A for the rationale for this action.

MA17-B - *Road Rehabilitation*

Refer to MA17-A for a description of this action. This action is the same as MA17-C and would provide a portion of the rationale for pursuing acquisition, easements, or agreements from a variety of affected parties on lands affected by this action.

Rationale for MA17-B

Refer to MA17-A for the rationale for this action.

MA18-B - *European Beachgrass Management*

Remove European beachgrass in areas which directly impact critical biological resources such as special status species. This action varies from MA8-A by supporting additional removal of beachgrass on a project-by-project basis for improvement of native plant species. This action is the same as MA18-C and would provide a portion of the rationale for pursuing acquisition, easements, or agreements from a variety of affected parties on lands affected by this action.

Rationale for MA18-B

In addition to the rationale supplied under MA18-A, expanded areas of open sand would create opportunities for native vegetation restoration, particularly experimental re-introduction of pink sandverbena.

MA19-B - *Scotch Broom Control*

Remove occurrences of scotch broom in areas which are in direct conflict with biological resources such as special status species. This action varies from MA19-A by supporting additional removal of scotch broom on a project-by-project basis for improvement of native plant species. This action is the same as MA19-C and would provide a portion of the rationale for pursuing acquisition, easements, or agreements from a variety of affected parties on lands affected by this action.

Rationale for MA19-B

Refer to MA19-A for the rationale for this action.

MA20-B - *Coos Head Day-Use Area*

Refer to MA20-A for a description of this action. This action is the same as MA20-C.

Rationale for MA20-B

Refer to MA20-A for the rationale for this action.

MA22-B - *Intertidal Cooperative Agreement*

Develop a conservation strategy through initiation of a cooperative agreement with the Division of State Lands, Oregon Department of Agriculture, International Port of Coos Bay, Sough Slough Estuary, U.S. Forest Service, and U.S. Fish and Wildlife Service for salt marsh bird's-beak habitat. The objective for this action is to prevent this species from being listed under the Endangered Species Act. This management action is the same as MA22-C.

Rationale for MA22-B

A conservation strategy for salt marsh bird's-beak and its habitat would include landowners and public agencies who currently have populations of this species within their borders. This conservation strategy would establish protection, monitoring, and habitat enhancement standards for populations in the Coos Bay estuary. It would also establish the lead agency in locations where ownership is either mixed or unclear.

MA23-B - *Salt Marsh Restoration*

Restore salt marshes in areas that have been impacted from the bayside road if the salt marsh does not re-establish on its own within two years. Restoration techniques would include planting of native species. This action is the same as MA23-C and would provide a portion of the rationale for pursuing acquisition, easements, or agreements from the IPCB on lands affected by this action.

Rationale for MA23-B

The salt marshes along the bay front on the North Spit are currently in a degraded condition. The upper portion of the salt marsh is absent due to motorized traffic on the principal access route to the southern spit. Restoring this portion of the salt marsh would significantly increase salt marsh bird's-beak habitat, roughly 80 percent of which overlaps the motorized access route.

MA24-B - *Re-establishment of Pink Sandverbena*

Re-establish an experimental population of pink sandverbena on the North Spit. This would be completed through a Challenge Cost-Share with the Oregon Department of Agriculture with the objective of developing guidelines for establishing new populations. Methods would include planting seeds and seedlings at different depths and stages of development to determine the most effective methods for re-establishment. Refer to monitored results from Environmental Assessments OR128-93-03 and OR128-93-13. This action is the same as MA24-C.

Rationale for MA24-B

Successful efforts to determine methods for re-establishment could help avert listing of this species by the U.S. Fish and Wildlife Service.

Description of Alternative C

Summary of Alternative C

The overall objective of Alternative C is to maximize wildlife protection while enhancing recreational opportunities where no wildlife conflict exists. Conflict between recreation users would be greatly reduced. Within the proposed ACEC, a non-motorized setting would eliminate most conflict; elsewhere on the CBS, a roaded natural or rural setting would shape visitor expectation consistent with experience. Wildlife management actions in excess of the legal requirements of the Endangered Species Act would constitute the primary management actions and would take priority over recreation management objectives.

The character of the CBS that is sought under Alternative C is one where recreational improvements are secondary to wildlife protection. Like Alternatives A and B, some actions expected to produce effects inconsistent with the goals of this alternative were eliminated. See Alternative C Map 2-5 for reference purposes.

Management Action Proposals for Alternative C

MA1-C - *Road Construction (Foredune Improvements)*

Refer to MA1-B for a complete description of this action.

Rationale for MA1-C

In addition to the rationale provided under MA1-B, additional considerations apply due to related proposals within this alternative. This action differs from MA1-B because it is linked to restrictions on all motorized uses within the proposed ACEC (MA3, 4, 5 and 6-C). Although the road proposal is identical, because it would not be used as an access corridor to other destinations further south on the North Spit, it is likely that overall use of this facility would be less than under Alternative B. In addition to lower use on the proposed new road, roughly 60 percent of the CBS would experience drastic reductions in visitation as a result of motorized use restrictions. The net effect is predicted to be an overall reduction in visitation to the CBS based on its loss of appeal as a recreation destination.

MA2-C - *Road Construction (Trans-Pacific Parkway Extension)*

This action is the same as MA2-A and MA2-B. Refer to MA2-A for a description of this action.

Rationale for MA2-C

In addition to the rationale described in MA2-A and MA2-B, additional considerations apply to this action as a result of the cumulative effects of other actions under this alternative. These improvements supply major mitigation for the loss of recreational opportunity elsewhere within the CBS.

MA3-C - *OHV Status*

Close the public lands within the planning boundaries to OHV use.

Rationale for MA3-C

OHV use is not compatible with the maximization of wildlife benefits proposed under this alternative. Visual and audio disturbance created by motor vehicles adversely affects wildlife in a variety of ways (see Chapter Three).

MA4-C - *Bay Beach Access*

Refer to MA4-B for a description of this action.

Rationale for MA4-C

In addition to the rationale supplied under MA4-B, this action is a necessary part of producing a non-motorized setting within the proposed ACEC.

MA5-C - *Ocean Beach Access*
MA8-C - *Undeveloped Camping*
MA9-C - *Day-Use Facilities*
MA10-C - *Sanitation*
MA12-C - *Equestrian Staging Areas*

These actions are the same as under Alternative B. Refer to the respective portion of Alternative B for descriptions of these actions.

Rationale for MA5-C, MA8-C, MA9-C, MA10-C, and MA12-C

Refer to rationales supplied under the respective actions for Alternative B.

MA13-C - *Non-Motorized Trail Designations*

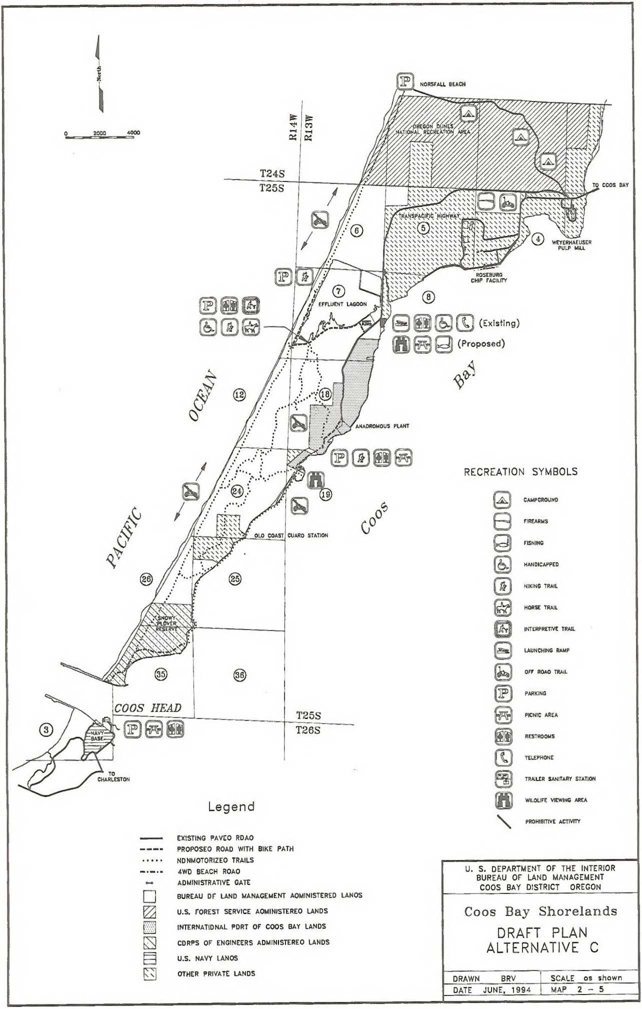
Refer to MA13-B for a description of this action.

Rationale for MA13-C

In addition to the rationale supplied under MA12-B, these trail designations would play an important role in defining the recreational opportunities available on the CBS in the context of restrictions on most traditional uses.

MA15-C - *Watchable Wildlife*
MA16-C - *Barrier-Free Interpretive Loop*
MA17-C - *Road Rehabilitation*
MA18-C - *European Beachgrass Management*
MA19-C - *Scotch Broom Control*
MA20-C - *Coos Head Day-Use Area*
MA21-C - *Timber Cutting*
MA22-C - *Intertidal Cooperative Agreement*
MA23-C - *Salt Marsh Restoration*
MA24-C - *Re-establishment of Pink Sandverbena*

These actions are the same as under Alternative B. Refer to the respective portions of Alternative B for descriptions of these actions.



U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

Coos Bay Shorelands

DRAFT PLAN
ALTERNATIVE C

DRAWN BRV	SCALE as shown
DATE JUNE, 1994	MAP 2 – 5

Rationale for MA15-C through MA24-C

Refer to rationales supplied under the respective actions for Alternative B.

Description of No Action Alternative

Summary of No Action Alternative

This No Action Alternative (NA Alternative) describes the current management situation on the CBS and reasonably foreseeable management actions. Since 1984 when the BLM began administration of the CBS, the area has provided an unconstrained motorized recreation setting characterized by high levels of user group conflict and moderate-to-high impacts to biological resources. Activity in this area was typical of many extensive recreation management areas administered by the BLM.

In 1988,in response to increasing levels of activity, the CBS was designated a Special Recreation Management Area. With increases in use came a need to shift to more innovative management actions.

Under the No Action Alternative, most recreation conflicts would persist at current levels. Wildlife management actions would be restricted to those required for special status species under the protection of the Endangered Species Act. The CBS would be characterized by continued traditional use patterns and activities. See the No Action Alternative Map 2-6 for reference purposes.

Management Action Proposals for the No Action Alternative

MA3-NA - *OHV Status*

The majority of the CBS would remain open to unrestricted OHV use. Vehicle use would be prohibited only within the fenced snowy plover habitat area and on the ocean beach between March 15 and September 15 which is the plover breeding season.

Rationale for MA3-NA

This action deviates from strict No Action because of the legal mandates of the Endangered Species Act (see Legal Requirements, Chapter One and Management Actions Common to All Alternatives above). OHV use is the most immediate threat to nest and brood activity. This is the minimum action necessary to avoid jeopardy to the snowy plover.

MA4-NA - *Bay Beach Access*

No action would be taken to alter bay beach access except as necessary to protect special status species.

Rationale for MA4-NA

The mandates of the ESA and BLM policy are outlined in the Legal Requirements section of Chapter One.

MA5-NA - *Ocean Beach Access*

No action would be taken to alter ocean beach access except as necessary to protect special status species.

Rationale for MA5-NA

The mandates of the ESA and BLM policy are outlined in the Legal Requirements section of Chapter One.

MA6-NA - *OHV Open Area*

All public lands within the planning boundary would remain open to OHV use except as noted in MA3, 4 and 5-NA.

MA18-NA - *European Beachgrass Removal*

This action is the same as under Alternative B. Refer to MA18-B for a description of this action.

Rationale for MA18-NA

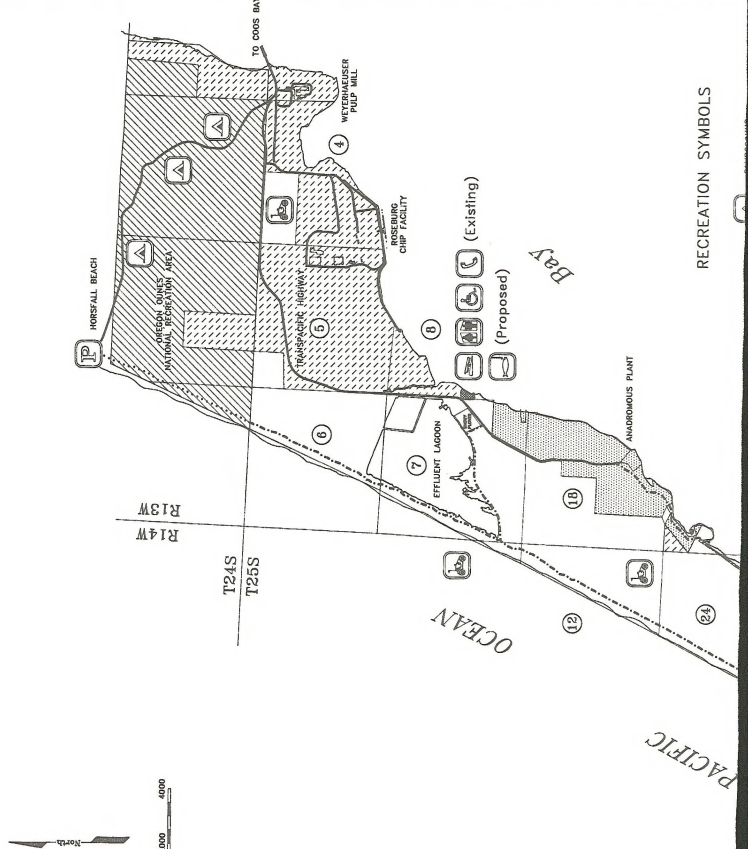
Refer to the rationale under MA18-B.

MA19-NA - *Scotch Broom Control*

This action is the same as under Alternative B. Refer to MA19-B for a description of this action.

Rationale for MA19-NA

Refer to the rationale for MA19-B.


HORSFALL BEACH
OREGON DUNES NATIONAL RECREATION AREA
TRANSPACIFIC HIGHWAY
ROSEBURG CHIP FACILITY
WEYERHAEUSER PULP MILL
TO COOS BAY
(Existing)
(Proposed)
Bay
RECREATION SYMBOLS
ANADROMOUS PLANT
EFFLUENT LAGOON
R13W
R14W
T24S
T25S
OCEAN
PACIFIC
North
0
2000
4000
4
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6
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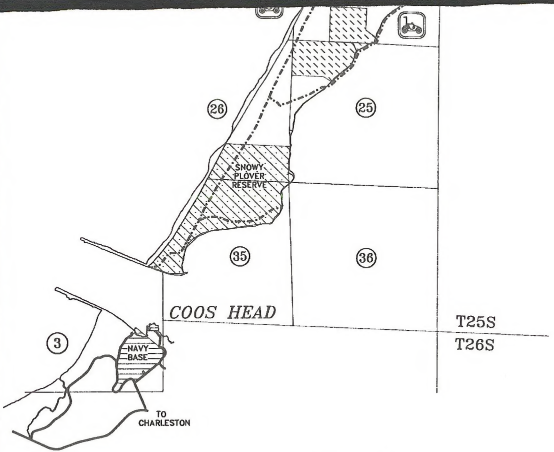
18
12
24



FIREARMS
FISHING
HANDICAPPED
HIKING TRAIL
HORSE TRAIL
INTERPRETIVE TRAIL
LAUNCHING RAMP
OFF ROAD TRAIL
PARKING
PICNIC AREA
RESTROOMS
TELEPHONE
TRAILER SANITARY STATION
WILDLIFE VIEWING AREA
PROHIBITIVE ACTIVITY

Legend

——	EXISTING PAVED ROAD
– – –	PROPOSED ROAD WITH BIKE PATH
	NONMOTORIZED TRAILS
–·–·–	4WD BEACH ROAD
o–o	ADMINISTRATIVE GATE
☐	BUREAU OF LAND MANAGEMENT ADMINISTERED LANDS
▨	U.S. FOREST SERVICE ADMINISTERED LANDS
▒	INTERNATIONAL PORT OF COOS BAY LANDS
▧	CORPS OF ENGINEERS ADMINISTERED LANDS
▤	U.S. NAVY LANDS
▧	OTHER PRIVATE LANDS

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON

Coos Bay Shorelands
DRAFT PLAN NO ACTION ALTERNATIVE

DRAWN BRV	SCALE as shown
DATE JUNE, 1994	MAP 2 – 6

Management Actions by Resource

This section states how each alternative addresses the major issues and opportunities listed in Chapter One for recreation, wildlife, and vegetation.

Management Actions for Recreation

BLM recreation programs are guided by Recreation 2000, a broad strategic plan designed to guide the program through the year 2000. The underlying philosophy is to provide high quality recreational opportunities in an unconstrained setting consistent with other resources values. By necessity, this management style obligates close monitoring of resource conditions and appropriate mitigative measures if conditions deteriorate. One underlying need for this plan stems from degradation of resources from previously unconstrained recreational activity on the CBS.

Recreation management on the CBS should seek to resolve the issues, concerns and opportunities (ICO) stated in Chapter One. Three activity categories (off-highway motorized uses, conventional motorized uses, and non-motorized uses) are addressed in detail to achieve recreation issue resolution. Because of their dominant concern to the public and the BLM, these three activity categories deserve more detailed analysis. Each activity category is oriented toward one or more of the recreation issues identified in Chapter One.

- Management of OHV motorized recreation should reduce conflict and impact.
- Management of conventional motorized recreation should reduce impact and create new recreational opportunities.
- Non-motorized opportunities and infrastructure proposals should create recreation opportunities.

Conflict Resolution by Alternative

Conflict in recreation is associated with recreationist expectation levels (Ivy and Stewart 1992, Keuntzel and Heberlein 1992, and Patterson and Hammit 1990). Conflict is more pronounced between motorized and non-motorized activities that compete for the same resource base. Conflict between these user groups is both direct (as in the case of motor vehicles using the same trails as pedestrians or equestrians) and indirect (as in the reduction of opportunities to view wildlife because of impacts from repeat disturbance). These conflicts are discussed in the Recreation Impacts section. Other direct effects include noise, smell and safety considerations.

On the CBS, a predominantly natural setting produces high quality wildlife habitat that draws visitors to the area to view, photograph, and study wildlife. The area also has high quality open sand areas favored by OHV enthusiasts, as well as being adjacent to the Oregon Dunes National Recreation Area, a destination that draws large populations of riders. In many areas of the CBS, however, wetlands are tightly interwoven with open sand areas making these locations less suitable for riding. Further, excellent clamming, crabbing, and fishing opportunities provide incentive for visitors to travel off-highway through sensitive habitats to access these resources. Current popular access corridors and OHV Open status on the CBS fuels high levels of conflict and produces impact to biological resources.

Conflict resolution on the CBS is, therefore, principally concerned with the distribution of motorized uses. The most effective means to reduce conflict would be segregation of OHV uses from general recreation. Also, because it is Bureau policy to take action that either prevents species from being listed under the Endangered Species Act or that promotes de-listing of a species already listed, the array of options available to resolve conflict issues is constrained.

All alternatives except No Action would limit or close OHV use under 43 CFR 8342.1. The array of alternatives presented strives to offer enhanced access to prime recreational resources in exchange for constraints on OHV opportunities. This has the effect of modifying visitor expectations about the type and frequency of OHV contact, thereby reducing conflict. Visitors would expect, for example, contact with motor vehicles within designated transportation corridors; outside these corridors, the sights and sounds of motor vehicles would be infrequent or absent. Improved law enforcement would ensure compliance with transportation management objectives.

Alternative A - The most suitable lands within the planning boundary are retained for OHV use while simultaneously offering protection to the more fragile surrounding areas. OHV uses would be allowed in a 260-acre open area located in the central dunes, and on the southern section of the bay beach. Ocean beaches would be open to OHV uses from September 15 to March 15 only to produce a non-motorized setting part of each year. Access to the south bay beach and the North Jetty would be via proposed conventional access routes. This reduces conflict by establishing clear expectations about where and when motorized uses are available.

Alternative B (Proposed Action) - OHV uses would be accommodated by retaining a selection of designated roads and trails for OHV access to priority recreation destinations on the bay beaches and North Jetty. The foredune road within the proposed ACEC, a spur trail in Sections 25 and 26 (for access to bay beaches), and the southern portions of the bay beach would be retained. Ocean beaches and the northern portion of the bay beach would be limited to non-motorized uses only. Access to the foredune road would be via proposed conventional access routes.

No OHV use area would be retained in Section 18. Proposals to site non-motorized trails in this area would produce higher conflict levels than under current conditions by creating a non-motorized attraction that would increase this kind of use in an area where OHV use would otherwise occur.

Alternative C - OHV uses would be eliminated to provide a maximum area of semi-primitive non-motorized recreation setting.

No Action Alternative - OHV uses for No Action would be accommodated by retaining open status within the planning area.

Impact Reduction - General

Recreation impact occurs when recreational activity produces a lasting effect either by altering the resources base for an extended period of time or disturbing other resources, making them less available for recreational use. Impact takes the form of stress to wildlife through habitat alteration or disturbance, sanitation problems, litter, and vegetation trampling. Stress to wildlife results from a variety of recreational activities.

Effects range from audio impact of motorized vehicles, to population shifts of scavengers species (e.g., crows, ravens, raccoons, skunks). Scavenger species may be disproportionately attracted to an area because of the availability of food scraps and other human waste. Predation upon other species may become an unwanted side effect, extending the impact of recreational activity into the biological community in unanticipated ways. Sanitation problems, litter, and vegetation trampling are biologically undesirable and also degrade the quality of visitor experiences. Impact in these situations becomes a form of conflict for many recreationists who visit an area for solitude, discovery and naturalness (Hull 1991; Ulrich, Dimberg and Driver 1991).

Impact Reduction Through Infrastructure Planning

The principal method of reducing impact on the CBS would be through infrastructure development including transportation planning, sanitation improvements, and day-use facilities. Infrastructure planning would define use corridors and concentrate activity in established recreation areas.

Transportation Planning by Alternative

In the past, the lack of conventional motorized opportunities encouraged OHV use and distributed impacts over a large area. This plan proposes a variety of transportation improvements to both concentrate use and mitigate for the loss of unconstrained OHV recreation that other resource concerns necessitate. Improvements in conventional motorized access would allow a broader public the opportunity to enjoy the public lands while reducing net impact from recreational use.

Suitable sites exist for roads that would improve access opportunities, concentrate uses, and reduce impacts to wildlife. It is recognized that paving roads and increasing visitation is not, in general, favorable to wildlife. However, the proposed infrastructure developments—when viewed as a part of a comprehensive transportation plan—provide several distinct advantages to wildlife as well as people. For example, wildlife benefits because the sights and sounds of motor vehicles, as well as the impact that motorized recreationists produce through other associated activities, is confined to discrete locations. People benefit because sightseeing while driving remains the most commonly pursued form of outdoor recreation, regardless of socioeconomic and geographic factors. Current conventional motorized opportunities on the CBS fail to provide access to a number of key recreational opportunities, including ocean and bay beaches.

This plan proposes the following road improvements to reduce impacts and address the importance of conventional motorized recreation to the travel industry on the Oregon coast:

Alternative A - Conventional motorized uses would receive the most emphasis under Alternative A. Approximately 5 miles of new pavement would extend along the foredune road from the effluent lagoon south to the North Jetty offering continuous ocean and public lands access. Access to the foredune road would be via the south dike road in Section 7. A variety of parking and day-use facilities would be constructed, especially at the planned trailhead located in Section 7 and at the proposed campground in Section 25. Parking and refuse containers would be distributed every half mile on the foredune to disperse use. In addition, a 0.3-mile extension of the Trans-Pacific Parkway would provide conventional access to bay beaches south of Anadromous, Inc.. The northern bay beaches would remain open to motorized uses, although actions would be taken to reduce the area of mechanical disturbance to salt marshes. A 260-acre OHV open area would also be established on the remnant open sand area located in Section 18. No action would be taken on Coos Head to alter conventional vehicle use.

Two special status species are likely to be impacted by increases in visitation prompted by these proposals: the federally threatened Western snowy plover that breeds on the ocean beach and dredge spoil areas of the CBS, and salt marsh bird's-beak (a plant that occupies sensitive salt marshes on the northern bay beach).

Alternative B - Alternative B seeks to balance conventional motorized uses with wildlife protection and the conservation of historic conditions on the CBS. Access to ocean beaches would be provided by 1.5 miles of new pavement traversing the south dike road and roughly 0.5-mile of the foredune road north along the western boundary of the effluent pond. Within the proposed ACEC, the foredune, a short spur in Section 25 and bay beaches south of the old U.S. Life Saving Station would be designated open to OHV uses to preserve access to key recreational resources. While the extent of conventional access would be less than under Alternative A, new pavement would provide a similar spectrum of opportunity and concentrate use in relatively resilient areas. A similar density of parking and trash facilities would be provided. As with Alternative A, a 0.3-mile extension of the Trans-Pacific Parkway would provide additional conventional access to bay beaches and be the site of a full-service day-use facility. No action would be taken on Coos Head to alter conventional vehicle use.

No OHV open area would be provided. Analysis indicates that only 260 acres of lands within the planning boundaries are suitable for this type of use. These lands, however, are tightly interwoven with sensitive wetland resources. The cost of resource protection is estimated to be very high compared to the benefits of retaining riding opportunities in these areas. This is particularly the case because the suitable riding area provides only limited recreational benefits.

OHV use on ocean beaches would be eliminated to protect breeding populations of snowy plovers and other shorebird species until such a time as the snowy plover is de-listed. The northern bay beaches would also be limited to non-motorized traffic for protection of salt marsh bird's-beak populations and to prevent listing of this species under the Endangered Species Act. Re-establishment of motorized thoroughfare in this area could be considered if the status of the plant improves.

Alternative C - Conventional motorized access for Alternative C would be the same as Alternative B. The principal difference between the two alternatives occurs beyond the areas available to conventional motorists. For Alternative C, no motorized uses would be permitted outside conventional access routes. As with Alternative A and B, a 0.3-mile extension of the Trans-Pacific Parkway would provide additional access to bay beaches and be the site of a full-service day-use facility. No action would be taken on Coos Head to alter conventional vehicle use.

No Action Alternative - No additional conventional motorized uses would be accommodated within the planning boundaries. Conventional access would remain at current levels offered by the Trans-Pacific Parkway and the roads on Coos Head.

Sanitation Improvements by Alternative

The number of sanitation facilities provided would be sufficient to meet all conventional motorized improvements. This action would mitigate concern about impact from human waste.

Alternative A - Five new facilities are proposed: two flush and three vault type facilities. The flush facilities would be located at the campground in Section 25 and at the day-use sight in Section 18. The vault facilities would be located at the trailhead in Section 7, at one location on the foredune road, and on Coos Head.

Alternative B - Four new facilities are proposed (the same as Alternative A, except for the flush facility in the proposed campground in Section 25).

Alternative C - Four new facilities are proposed, the same as Alternative B.

No Action Alternative - No new sanitation facilities are proposed.

Day-Use Facilities by Alternative

Day-use facilities (including trash and sanitation system, picnic areas, parking areas, and trailhead access) reduce impacts if they are provided in a centralized location. A variety of day-use facilities are proposed to provide a focal point for activity that has been absent on the CBS in the past.

Alternative A - Two major and two minor day-use facilities would be provided. The proposed new terminus of the Trans-Pacific Parkway in Section 18 would be the site of the top priority day-use site. It would offer running water, tables, full sanitation facilities, and trailhead access to the proposed trail network (see Recreation Opportunities). The second major day-use facility would be annexed to the proposed campground in Section 25 and would have a similar array of amenities. A minor site featuring picnic tables and grills would be established at the trailhead in Section 7. The second minor site would be located on Coos Head. Overnight parking would be permitted to facilitate night-time use of non-motorized off-road areas on the CBS.

Alternative B - Day-use facilities would be the same as under Alternative A with the exception of the proposals for Section 25.

Alternative C - The same as Alternative B.

No Action Alternative - No new day-use facilities would be proposed.

Impact Reduction Through Regulation

A second important method of impact reduction is regulation. In this case, regulations will address dispersed camping, the use of firearms, and firewood collection. Regulatory actions would address impact activities not resolved through infrastructure proposals.

Dispersed Camping and Use of Firearms

The distribution of camping and the use of firearms would be managed through regulation.

Proposed regulatory camping guidelines for all alternatives, unless otherwise noted, are as follows:

- Undeveloped camping would be prohibited within 200 feet of paved roads for Alternatives A and B, within 500 feet of paved roads for Alternative C, and no restriction for the No Action Alternative.
- The district-wide 14-day camping limit would be enforced within the planning boundary for all alternatives.
- No permanent structures of any kind (including hunting blinds) would be permitted.
- Overnight parking would be permitted in any designated parking area, but camping would be prohibited.

A proposed regulatory guidelines for the use of firearms on the CBS is:

- Discharging of firearms would be prohibited within 200 yards of all developed recreation facilities including, but not limited to: day-use areas, paved roads, sanitation facilities, trailheads, parking areas, boat ramps, and campgrounds.

An additional regulatory guideline proposed to reduce impacts is:

- Except for driftwood on ocean and bay beaches, no cutting of any timber, standing or down, would be allowed within the planning boundary.

Recreation Opportunities

Two categories of recreation opportunities would be created. The first is infrastructure improvements which should improve the level of service to the public. The second would be produced from shifts in the recreation opportunity spectrum that would occur as a consequence of other management actions. In particular, recreation opportunities in this latter category would result from management actions taken to restrict OHV uses. Substantial demand exists for non-motorized opportunities (see Chapter Three). The CBS can supply many of these opportunities in quantities sufficient to reduce demand. Economic benefit to the region could be a positive outcome.

Infrastructure Improvements

Recreation opportunities resulting from infrastructure improvements for all alternatives, except No Action or as otherwise noted, include:

- Equestrian staging area at the trailhead in Section 7 for all alternatives. For Alternative A, add an additional equestrian staging area in Section 25 adjacent to the proposed campground.
- Approximately 12 miles of non-motorized trail.
- Wildlife viewing platforms with interpretive materials on the dredge lobe in Section 19 and at the boat ramp. A shorebird viewing guide would be produced and distributed that would direct people to these areas. Access would be non-motorized and require a 0.25-mile walk from the proposed day-use area in Section 18, except under Alternative A.
- The boat ramp would be barrier free to provide a representative estaurine recreational opportunity.
- A barrier-free interpretive trail in Section 7. This facility would also provide crabbing and fishing opportunities which are currently in short supply around Coos Bay.
- Crabbing and fishing opportunities at the North Spit boat ramp as the result of day-use facility enhancement.
- Developed camping in an estuarine setting close to the ocean (Alternative A only).

Recreation Settings by Alternative

Recreation opportunities would result from shifts in Recreation Opportunity Spectrum (ROS) settings. As noted in Chapter Three, the entire CBS currently contains two settings—Rural and Semi-Primitive Motorized (SPM) in the amount of 1,445 acres and 2,300 acres respectively.

Alternative A - There would be no change in the number of acres in Rural setting under this alternative. However, a substantial reduction in SPM would occur. The shift would be primarily toward Roaded Natural (RN) with small pockets or seasonal areas with Semi-Primitive Non-Motorized (SPNM) characteristics (see more analysis in Chapter Four). The ROS setting on Coos Head would remain the same.

Alternative B - The number of acres in Rural setting would remain the same, but there would be a substantial shift to areas with SPNM characteristics. In particular, the ocean beach which is visually and audibly screened from the sites and sounds of human activity, would have SPNM characteristics. A relatively small area around the proposed new road construction would acquire RN characteristics. The ROS setting on Coos Head would remain the same.

Alternative C - Shifts in ROS settings would be the most pronounced under this alternative. Except for 335 acres of RN near the proposed road construction and the 1,445 acres of Rural in the portal area of the CBS, the remaining 1,965 acres of the North Spit would be SPNM. The ROS setting on Coos Head would remain the same.

No Action Alternative - Under this alternative, ROS settings would remain the same as they are currently, and no recreation opportunities would occur.

Management Actions for Wildlife

The preservation of ACEC values such as native species habitat would be the focus of wildlife habitat management actions on the CBS. Special emphasis would be placed on the protection of habitat for special status species. Non-native plants and animals would be considered undesirable, and in certain cases management actions may be designed to reduce or eliminate them. Non-native plant species such as European beachgrass, gorse and scotch broom have reduced habitats suitable for many native species. Compounding the degrading effects of non-native species on wildlife habitats is the unconstrained recreational use of these lands. In particular, off-highway vehicle use is responsible for additional habitat loss and fragmentation and a pattern of frequent disturbance, particularly in the area of the bay beaches. The management activities proposed under this plan focuses on three issues—management of recreational activities and access to reduce impacts to wildlife, habitat enhancement measures to improve conditions for native species, and recovery of special status species.

Constraints on Recreational Activities and Access

Unconstrained recreational activities and off-highway vehicle access substantially affect native wildlife species and habitats of the CBS and the adjacent estuary. Principal recreation management concerns are impacts to biological resources, disturbance, and litter and waste. Vehicle travel fragments habitat and alters wildlife use patterns. Litter brought to the area by recreationists provides unnatural food sources that attract scavenger species such as crows and ravens. The increased presence of these species may produce adverse effects on other wildlife. The alternatives presented provide an array of options for managing these activities at various levels of protection for wildlife and their habitats.

Alternative C would provide the greatest level of protection for wildlife as a consequence of greatly restricted motorized opportunities and a general reduction in visitation. Alternatives A and B would provide less benefits to wildlife, and No Action the least. Under Alternative A, new recreational facilities and paved access roads would be developed throughout the CBS, while in Alternatives B and C new roads and facilities would be developed in the northern portion of the CBS outside the proposed ACEC boundary. No new recreational facilities or access roads would be developed under No Action. The improved road access and creation of recreational facilities under Alternatives A and B is expected to increase the total number of visitors using the CBS. However, by channeling high visitor use away from sensitive resources, managing the types and timing of recreational activities, and providing waste facilities, visitor use of the CBS could be increased while providing greater protection to wildlife than would exist under No Action.

Parameters for Off-Road Travel by Alternative

Vehicle use on designated access roads would be permitted under all four alternatives, but the opportunities for off-road travel would vary.

Alternative A - This alternative would provide a low level of protection for wildlife resources by providing an additional 5 miles of paved access roads along the foredune, a 260-acre open sand free play area, full motorized bay beach access, and seasonal use of the ocean beach. Limiting OHV use to designated roads would reduce the extensive fragmentation of upland habitats and reduce vehicle disturbance to wildlife on some parts of the North Spit. However, the combined effects of retention of the open sand free play area, paving the foredune road, and developing a campground in Section 25 would increase traffic and visitation levels, offsetting most of the benefits expected from OHV limitations.

Alternative B - Alternative B would provide the second highest level of protection for wildlife resources. Under this alternative vehicle use would be limited to an additional 1.5 miles of paved access road and 3.5 miles of designated 4-wheel drive road on the foredune within the proposed ACEC. The new pavement is proposed in two segments, one ending at a day-use site at the proposed day-use site in Section 18, and the second extending along the south dike road of the effluent pond to the foredune road, then north to the midpoint along the western boundary of the effluent pond. A 1.5-mile section of the bayside beach south of the old U.S. Life Saving Station would also remain open to OHV use and would be accessed by a short designated spur west of the foredune road in Section 26. Limiting OHV use to designated roads would reduce the extensive fragmentation of upland habitat and substantially reduce vehicle disturbance to wildlife within the proposed ACEC.

In addition, a major emphasis on wildlife education under the Watchable Wildlife proposals would increase visitor awareness of wildlife and their habitats. By educating recreationists about the types and severity of disturbing activity, a substantial reduction in arbitrary disturbance to wildlife should occur.

Alternative C - This alternative would provide the greatest protection for wildlife. Conventional road proposals are the same as under Alternative B; however, access beyond the paved roads would be limited to non-motorized forms of transportation such as hiking or horseback riding. These restrictions would provide substantial protection for sensitive wetland habitats and other key ACEC values which have been compromised by unrestricted motorized use. Eliminating OHV use would also reduce the extensive fragmentation of upland habitats and eliminate vehicle disturbance to ACEC values. The Watchable Wildlife program under this alternative would be the same as under Alternative B.

No Action Alternative - This alternative would permit unrestricted OHV use on all BLM-administered lands except the 10-acre fenced snowy plover site in Section 7, the 24-acre fenced snowy plover site in Section 35, and the ocean beach during the snowy plover breeding season. Habitat fragmentation and disturbance to wildlife caused by vehicles would continue to impact ACEC values.

Reduction of Wildlife Disturbance by Alternative

The wildlife species using the CBS and adjacent estuary are subject to a variety of disturbances caused by human activities occurring on these lands. Under current management, motorized recreational activities cause the greatest disturbance to wildlife, but non-motorized types of recreation can also have substantial impacts, especially when concentrated near sensitive habitats or over large areas. Of particular concern is the great blue heron rookery located on the North Spit, where geographic isolation has been identified as a major factor affecting site integrity (Van Dyke, pers. comm.). The four alternatives proposed under this plan provide both motorized and non-motorized recreational opportunities at various levels of intensity and dispersal throughout the CBS, producing a variety of types and levels of disturbance.

Alternative A - Under this alternative, wildlife disturbance caused by motorized recreation would decline moderately and be concentrated in the vicinity of the open sand free-play area, along the access road corridors, and on the ocean and bay beaches. Vehicle access to the ocean beach would be prohibited from March 15 to September 15 each year to reduce disturbance to nesting snowy plovers. Restrictions on the bay beaches would expand salt marsh habitat but continue to produce the same level of disturbance. Although disturbance caused by OHV would be reduced, paving the foredune road would increase the amount of vehicle traffic and human presence on the south end of the CBS. Net disturbance to wildlife from recreation would probably increase under this alternative.

Disturbance caused by non-motorized recreation would increase substantially under Alternative A. The development of an easily accessible campground and equestrian facility in Section 25 would create a high use recreational site on the southern end of the North Spit. This site would potentially attract large numbers of hikers and horseback riders seeking access to the surrounding habitat, especially during early morning and late evening hours when many wildlife species are most active. The increased level of recreational use could alter current habitat use patterns and may make certain habitats unsuitable for species with a low disturbance tolerance. The greatest concern is for impacts to shorebirds and waterfowl which use the bay beaches.

Alternative B - Under Alternative B, wildlife disturbance caused by motorized recreation would decline substantially. Motorized use would be concentrated along the access road corridors, and on the portions of beach open to vehicle use. Vehicle access to the ocean beach would be prohibited to reduce disturbance to nesting snowy plovers and other shorebirds and to provide consistency with upland management. A 1.5-mile section of the bay beach from the Anadromous facility south to the old U.S. Life Saving Station would be restricted to non-motorized recreation, reducing disturbance at one of the most important areas of shorebird habitat on the Coos Bay estuary. Although the foredune road would remain a sand access road under this alternative, the level of vehicle use would increase due to displacement of visitors from bay beach access routes.

Non-motorized recreational disturbance would increase moderately near developed recreation sites. When combined with actions to reduce unrestricted motorized uses, however, the net effect would be positive. The major recreation facilities would be developed in the northern portion of the CBS to reduce impacts to ACEC values. The lands around the day-use area in Section 18, the combined trailhead/equestrian staging site in Section 7, and the paved ocean beach access parking lot in Section 7 would be expected to receive heavy use from hikers and horseback riders. In addition, ocean and bay beaches closed to motorized use would be expected to receive increased pressure from non-motorized recreationists, but the net effect would be one of substantially reduced disturbance to wildlife.

Alternative C - Wildlife disturbance caused by motorized recreation activities would be eliminated within the proposed ACEC boundary. Vehicle access to ocean and bayside beaches would be also prohibited to reduce disturbance in these habitats. This alternative would provide the greatest reduction in vehicle disturbance to wildlife.

Disturbance caused by non-motorized recreation would decline in the southern portions of the proposed ACEC. All recreational facilities would be developed in the northern portion of the CBS to reduce impacts to ACEC values. The lands around the day-use area in Section 18, the combined trail head/equestrian staging site in Section 7, and the paved ocean beach access parking lot in Section 13 would be expected to receive frequent use from hikers and horseback riders. This activity pattern would be expected to alter wildlife use of affected areas. In addition, ocean and bay beaches closed to motorized use would be expected to receive increased pressure from non-motorized recreationists, but the net effect would be one of substantially reduced disturbance to wildlife. In interior portions of the proposed ACEC, modest increases in non-motorized uses are expected. These increases, however, would be a part of a net reduction of impact to wildlife from recreation.

No Action Alternative - Wildlife species using the interior habitats and bayside beach would be subjected to the highest level of disturbance from motorized recreation. Unrestricted OHV use and camping would continue to occur at high levels throughout the southern end of the North Spit. OHV use on the ocean beach would be prohibited from March 15 to September 15 to protect nesting snowy plovers. Disturbance to wildlife from motorized activity would be substantially reduced during this season. Disturbance from non-motorized activities would be minimal under this alternative.

Litter and Waste Control by Alternative

Improper disposal of waste by visitors has resulted in an accumulation of litter and other human waste products, especially near high use sites. These waste accumulations produce two management concerns. First, waste serves as unnatural food sources for scavenger species. Scavengers on the CBS include ravens, crows, gulls, vultures, skunks, possum, and feral cats and dogs which, once attracted to the area, prey opportunistically on the eggs, young and adults of other wildlife species. Where unnaturally high concentrations of these scavengers occur, there are often substantial impacts to native wildlife species, especially those species with limited distribution or that have already experienced population declines due to habitat loss. On the CBS, nest predation by crows, ravens and skunks is considered one of the primary factors limiting the nesting success of snowy plovers. The second management concern is human health and sanitation. Uncovered fecal material creates a health hazard for all recreationists. The four alternatives propose various levels of recreational development and sanitation management.

Alternative A - This alternative would substantially increase the amount and distribution of litter and other waste due to the large projected increase in visitation. Although sanitation and waste disposal facilities would be provided at a number of developed recreation sites on the CBS, these improvements would only partially mitigate the overall increases in waste from recreational uses. The net effect of this alternative would be a possible increase in scavenger-related mortality of wildlife. Due to the provision for waste disposal, human health concerns about uncovered human waste would decrease.

Alternative B - This alternative would provide sanitation and waste disposal facilities at several developed recreational sites north of the proposed ACEC. Although access patterns proposed under this alternative are predicted to increase traffic flows on the foredune road, the availability of waste disposal facilities enroute to foredune destinations would mitigate most waste management concerns. Human health concerns would decrease.

Alternative C - This alternative would reduce the amount and distribution of litter and other waste by eliminating motorized recreational activity within the proposed ACEC, while contributing to the existing litter problem in the northern portion of the CBS at a level similar to Alternative B. The reduction in waste accumulation may help reduce the impacts of predation on snowy plovers and other native wildlife. Human health concerns would decrease.

No Action Alternative - This alternative would not change current recreation activity patterns. No additional sanitation or waste disposal facilities would be provided. Accumulation of litter and other waste would continue to occur throughout the CBS at levels higher than Alternatives B and C. The lack of a waste management strategy would result in improper waste disposal and continued associated scavenger and sanitation concerns. Human health concerns would remain the same as present.

Wildlife Habitat Rehabilitation by Alternative

OHV use has resulted in the pioneering of an extensive road and trail network throughout the CBS. These roads and trails have fragmented wildlife habitats and created motorized access into interior habitats. Although most of the existing roads and trails would be allowed to revegetate naturally, those that provide access to key habitat sites would be rehabilitated to speed restoration and discourage further visitation.

Alternative A - Extensive road rehabilitation would be conducted. Except for the designated primary access route, log or rock barriers would be placed on all existing roads and trails connected to the 260-acre open sand free play area to reduce vehicle trespass outside of permitted areas. In combination with the placement of these structures, native shrub species would be planted along 200-300 feet of the road to create natural vegetative barriers as deterrents to vehicle use on these trails. Similar measures would be used on other selected roads and trails which continue to receive substantial vehicle trespass. In addition, all trails leading to the vicinity of the old U.S. Life Saving Station and the North Spit heron rookery would be specifically slated for rehabilitation to reduce disturbances to this sensitive wildlife habitat site.

Alternative B - Limited road rehabilitation would be conducted. Log or rock barriers would be placed on selected roads and trails closed to vehicle use which continue to receive substantial vehicle trespass. All trails leading to the vicinity of the old U.S. Life Saving Station and the North Spit heron rookery would be rehabilitated as with Alternative A.

Alternative C - Road rehabilitation would be conducted only if needed to deter vehicle trespass on closed roads. Log or rock structures and native shrub species barriers would deter vehicle use on these trails. Where vehicle trespass is not a disturbance concern, roads and trails would be allowed to revegetate naturally.

No Action Alternative - No road rehabilitation would occur except where there is documented evidence of impact to legally protected species. The remainder of the CBS would remain open to all motorized uses.

Protection of Special Status Species by Alternative

Under all alternatives, the management of special status species and their essential habitats would be consistent with the Endangered Species Act of 1973, current recovery plans, and BLM policy as outlined in Bureau Manual 6840.06 (Special Status Species Management).

No special actions would be taken at this time for species other than the snowy plover and salt marsh bird's-beak, as described under Actions Common To All Alternatives and Vegetation.

Chapter Four provides details on the effects of management activities on the various special status species that are occasional visitors to the CBS, or for which the CBS is non-critical habitat. An overview of the special status protection actions is provided below.

Alternative A - Visitation would increase and be channeled toward designated high use areas, increasing disturbance to some special status species. In particular, recreational facilities at the south end of the North Spit may affect nesting populations of snowy plovers. Monitoring would be initiated to determine if other species are being affected, the extent of disturbance, and the effectiveness of management measures required to eliminate or reduce disturbance levels. Although the brown pelican, peregrine falcon and bald eagle do not nest on the North Spit, the shorelands and adjacent areas are essential for foraging and roosting of these species.

Alternative B - Increased visitation is also expected around developed recreation sites. Snowy plover nesting areas would benefit due to OHV restrictions on the ocean beach, as would eagle and peregrine forage and roost areas. Occasional disturbance to some special status species from non-motorized recreational activities is still likely to occur, but impacts would be substantially lower than under current conditions (No Action).

Alternative C - Special status species within the proposed ACEC boundaries of the CBS would benefit greatly due to elimination of OHV use. As with the other alternatives, however, low levels of disturbance from non-motorized uses could occur.

No Action Alternative - Continued high levels of disturbance would occur to most special status species that utilize the CBS.

Management Actions for Vegetation

Vegetation on the CBS has been greatly altered by the introduction of non-native species, specifically European beachgrass, scotch broom and gorse. These species are biologically undesirable and pose a serious threat to Western snowy plover nesting areas and remnant native plant communities. Management actions are necessary to reduce effects on these species.

Besides the effects of non-native vegetation, unconstrained recreation is also impacting some sensitive plant communities. In particular, OHV use is responsible for a reduction in salt marsh habitat along the bay beach, which directly impacts salt marsh bird's-beak. The vegetation management actions proposed under this plan focus on the management of non-native vegetation and its effects on native plant communities, wildlife, especially the snowy plover, and the management of special status plant species.

Control of Non-Native Plant Species

Establishment of non-native vegetation, specifically European beachgrass, has caused significant changes in the vegetation on the CBS. European beachgrass has created a higher foredune, reduced the abundance of native coastal foredune plant species, and created more extensive wetlands in the deflation plain. The encroachment of European beachgrass throughout Oregon, Washington and California has resulted in population declines of pink and yellow sandverbena. This decline has occurred to the point that pink sandverbena is a federal candidate species and populations of yellow sandverbena are being monitored. The alternatives in this plan provide a range of options for the management of non-native vegetation that would benefit both the pink and yellow sandverbena and their habitats.

European Beachgrass Management by Alternative

The management of European beachgrass would be most intense under Alternatives B and C, and less intense under Alternatives A and the No Action. European beachgrass management would occur primarily on the south end of the North Spit west of the foredune road in the vicinity of the existing snowy plover exclosure. The objective of this site selection is to link the nesting area to the beach. Many methods (salt water irrigation, heavy equipment, tillage, burning, manual removal) have been proposed for beachgrass removal, but effectiveness of these methods is currently unknown. Most proposed methods are either too costly, environmentally unfeasible, or too time consuming to be practical solutions. Initial projects would be experimental in nature and produce short term benefits only. New treatments would be evaluated for effectiveness and revised as feasible.

Alternative A - European beachgrass management would only occur when its presence directly conflicts with critical biological resources, such as special status species (Western snowy plover habitat). This proposal would maintain the current habitat status; no enhancement projects would be planned.

Alternative B - European beachgrass management would include maintenance of existing habitat for snowy plovers and projects that would increase the amount of snowy plover nesting habitat or result in predator cover reduction. Snowy plovers would benefit from the increase in potential habitat and the reduction of predators. Any removal of beachgrass would also benefit reintroduction of pink sandverbena and other native vegetation.

Alternative C - The same as Alternative B.

No Action Alternative - The same as Alternative A.

Scotch Broom Management

Scotch broom is very common on the North Spit, and in some areas is the dominant overstory species. This species only occurs in areas already stabilized by European beachgrass and may prevent the establishment of other native woody vegetation. Scotch broom management would be similar to European beachgrass management and would be performed concurrently.

Protection of Special Status Species by Alternative

Current recreation activity on the CBS is having substantial impacts to special status plant species. Vehicle traffic along the bay beach directly impacts salt marsh bird's-beak and sea- lavender by reducing their habitat. These species occur in the upper one-third of the salt marsh, coinciding with the preferred vehicle access route. Normal salt marsh morphology indicates colonization occurring out from uplands into the intertidal region. The estuary salt marsh on the CBS has been severed from the uplands by vehicle traffic. Not only has this impacted special status species, but it disrupts the continuity of transitions. Ecotones, such as the ones that would exist between the salt marsh and uplands often have a positive relationship to species and habitat diversity.

The elimination of pink sandverbena on the CBS may be related not only to impacts from vehicles, but also to establishment of non-native vegetation. The alternatives in this plan strive to reduce impacts to special status species from vehicle use along the bay beaches and from non-native vegetation.

The proposed actions provide a management strategy to prevent the listing of special plant species under the Endangered Species Act. Special status plant species would be afforded the most protection under Alternatives B and C, with Alternative A providing less protection, and the No Action Alternative providing only the legally required level of protection. The following is an analysis of each special status plant species by alternative.

Protection for Salt Marsh Bird's-Beak by Alternative

The following section describes management actions that affect the population of salt marsh bird's beak.

Alternative A - The salt marshes would continue to be impacted, however to a lesser degree than under the current situation (No Action Alternative). The bay beach would be narrowed to a one-lane road with turnouts using a post and cable fence. The salt marsh is expected to revegetate in areas where vehicles are removed. It is possible that some non-motorized trespass would occur as a result of proposed recreational facilities located in the area.

Alternative B - The northern bay beach road would be closed where salt marshes occur. The consequence of this action would be elimination of impact from vehicles to existing estuary salt marshes on the CBS. The salt marsh would re-establish itself where the road currently exists, probably in 3-5 years. If the salt marsh did not re-establish, restoration efforts would be made.

In addition, the proposed development of a cooperative agreement between landowners who currently have populations of salt marsh bird's-beak (BLM, Port of Coos Bay, South Slough Estuary, Division of State Lands, and Forest Service) and regulatory agencies (ODFW and USFWS) would outline strategies for protection, monitoring and enhancement measures for populations within the Coos Bay estuary.

Alternative B proposed actions would be the BLM's input to this process. The consequences of this agreement should be a substantial increase in salt marsh bird's-beak populations around the bay, especially on the CBS. This would assist in prevention of the species being listed under the ESA. Since this species occurs near the mean high tide line, which complicates management responsibilities, a cadastral survey would be conducted to determine where the high tide line occurs. This would precisely delineate ownership, a central parameter for any successful cooperative agreement. Monitoring would continue to determine population trends for salt marsh bird's-beak.

Alternative C - The same as Alternative B.

No Action Alternative - No Action would provide the least amount of protection to salt marsh bird's-beak. Consequences would remain the same or increase with higher visitation to the area. Under this alternative, no action would be taken to mitigate existing conditions.

Protection for Sea-lavender

Because this species occurs in the same habitat as salt marsh bird's-beak, the most protection would occur if Alternatives B or C are selected, with lesser amounts for Alternatives A and the No Action. The protection measures for Alternatives B and C, described above, would increase the amount of habitat for this species and provide better protection in roughly the same proportion as for Salt-Marsh Bird's Beak.

Protection for Pink Sandverbena

No populations of pink sandverbena currently exist within the CBS.

Alternative A - No management for pink sandverbena would occur.

Alternative B - Alternative B proposes to re-establish a population of pink sandverbena within the CBS. This re-introduction would occur in areas where competition from European beachgrass has been removed through management treatments. Recreation conflict would be minimal; areas chosen for the re-introduction would be within or adjacent to protected snowy plover areas.

Alternative C - The same as Alternative B.

No Action Alternative - The same as Alternative A.

CHAPTER 3

AFFECTED ENVIRONMENT

This chapter describes the environment which would be affected by this plan. General physical, biological and social characteristics are described followed by detailed explanations of affected resources. The focus is on recreation opportunity and setting, botanical and animal communities, hydrological resources including wetlands, and cultural resources.

Physical and Biological Setting

The planning boundaries of the CBS encompass 3,750 acres, including approximately 1,700 of public domain lands adjacent to the cities of Coos Bay and North Bend within Coos County, Oregon (See Map 2). The majority of land (approximately 1,600 acres) is located on the North Spit of the Coos River. Approximately 90 acres are located on Coos Head adjacent to Charleston, a rocky headland that forms the southern jaw of the mouth of Coos Bay. Access to the North Spit is via State Highway 101 and the Trans-Pacific Parkway.

Topography, Geology, and Soils

The CBS is the southern terminus of the Coos Dune Sheet that runs from Florence to the mouth of the Coos River (Cooper 1958). In the past, this geologic formation was characterized by active dunes that migrated with seasonal variations in wind direction. River drainages throughout Oregon provided sediment sources to the ocean, which deposited this material as sand on ocean beaches. Seasonal winds created a functioning geologic feature by driving ocean beach sediments inland and depositing them in the bay.

Introduction of European beachgrass early in this century has halted sediment travel and created a relatively static formation known as the North Spit of the Coos River. Today only 16 percent (260 acres) of the lands in the planning area contain active dune formations, and it is questionable whether the North Spit is geologically functional as a coastal barrier formation. The remaining area has a sand base consisting of naturally-vegetated dunes or other areas where scouring by wind has removed sand down to the water table level, forming deflation plain wetlands.

Soils of the North Spit have been recently mapped by the USDA, Soil Conservation Service (SCS). Soils on the North Spit consist almost entirely of fine wind-blown dune sand. In places, the sands have been stabilized by vegetation long enough to show at least minimal soil development and are recognized as a soil series (SCS 1989).

The CBS contains nine soil types (see Table 3-1). The Waldport and Heceta soil series and Duneland have been mapped in various combinations, along with varying slopes, to form several different soil map units that occur on the North Spit.

The Waldport series has a thin, weakly-developed "A" horizon (surface layer) that overlies dune sand to great depths. It is excessively drained and is developing under a cover of spruce, fir, other associated forest vegetation, and introduced European beachgrass.

The Heceta series also has a thin, weakly-developed "A" horizon and is fine sand to great depths. Unlike the Waldport series, however, it is poorly drained with a water table often at or over the soil surface during the winter and spring months. The Heceta series is developing under a cover of water-tolerant vegetation, and occurs in low, level or nearly level swales and

Table 3-1. Soil Types on the Coos Bay Shorelands

Map Symbol	Soil/Land Type[1]	Percent Slope	BLM Acres	Percent of Total
3	Beaches	0-3	90	5.6
16	Duneland	0-70	215	13.4
28	Heceta fine sand	0-3	60	3.7
29B	Heceta-Waldport fine sands	0-7	405	25.3
59D	Waldport fine sand	0-30	10	0.6
59E	Waldport fine sand	30-70	25	1.6
60D	Waldport-Duneland complex	12-30	335	20.9
61D	Waldport-Heceta fine sands	0-30	145	9.0
W	Water (effluent pond)		320	19.9
Totals			1605	100.0

[1] Dredge spoils were not specifically mapped in the SCS soil survey.

"deflation plains." In some years, the Heceta soils could be considered wetlands, but in drier years—such as the last several—water does not cover the surface for a long enough period of time to meet the minimum wetland criteria. The only other soil map units on the North Spit are Duneland and Beach.

The planning area also contains the rocky headland known as Coos Head.

Climate

The Central Oregon Coast has a temperate maritime climate due to the proximity of the Pacific Ocean and the influence of the Japanese Current. The planning area is characterized by cool dry summers and mild wet winters that deposit annual precipitation of 60-65 inches per year, principally from November through March. Summer temperatures range from highs of 65-75 degrees to lows of 45-55 degrees, and winter temperatures range from highs of 40-50 degrees to lows in the 30s. Temperatures above 90 or below 20 are rare.

Prevailing wind conditions are strong northwesterly in summer and moderate southwesterly in winter. Dry easterly winds can occur for 2-3 days at any time of the year. Also, during the winter there will generally be several windstorms with winds up to 100 miles per hour. Relative humidity is generally above 40 percent, except when easterly wind conditions develop.

Summer weather is characterized by foggy mornings, warm sunny afternoons, and cool evenings. The northwesterly wind which blows almost every day is quite cool. Precipitation is light and spotty; however, sometimes fog or low overcast lasts all day, and fog drip may contribute significantly to available moisture. Winter weather is characterized by frequent rains with intermittent clearing periods. Snow may fall on the beach every few years when Arctic air meets an onshore flow of moist air.

Water

The CBS is a relatively low lying area with low relief and poor drainage. Seasonal precipitation infiltrates into the relatively porous dune sheet and either recharges the groundwater table, or appears as standing water in small, fresh-water, deflation plain wetlands.

A variety of wetland types are present. Subtidal and intertidal wetlands and water habitats of high salinity are found along the Pacific Ocean shore. The Coos Bay forms a lower estuary along the North Spit, and has intertidal shore wetlands and water habitats of moderate salinity. Fresh-water, nontidal wetlands of low salinity are interspersed in low lying portions of the deflation plain east of the ocean and foredune.

The fresh-water wetlands have features of high water tables, seasonally to semi-permanently flooded conditions, poorly drained soils, and herbaceous and some shrub vegetation that thrive in saturated conditions. Very little open water is present. The actual area of these wetlands varys by season, but collectively the wetlands occupy about 65-150 acres.

The groundwater supply in the Coos Dune Sheet aquifer is large. The Coos Bay-North Bend Water Board has a series of 20 fresh-water production wells in T. 24 S., R. 13 W., Sec. 32, just north of BLM-administered lands. Present average withdrawal is 3.2 million gallons per day (mgd). According to studies, the aquifer can provide an estimated 9-19 mgd without significantly affecting surface water resources.

Weyerhaeuser has a lease agreement on BLM-administered lands located in T. 25 S., R. 13 W., Secs. 6, 7 and 8 for a settling pond to process paper mill effluent. The pond is shallow and has a surface area of about 285 acres. Particulars of the effluent including treatment, discharge, and monitoring requirements are guided by the Oregon Department of Environmental Quality under ORS 468.740 and by EPA under the National Pollutant Discharge Elimination System pursuant to the Clean Water Act.

Recreation

Recreation Settings

The Recreation Opportunity Spectrum (ROS) is a system used by many land management agencies to characterize the social and physical settings where outdoor recreational experiences occur. ROS is a continuum of settings ranging from Primitive to Urban. Only two of the six ROS settings currently exist on the CBS: Rural and Semi-Primitive Motorized.

Rural - The Rural ROS setting is characterized by a substantially modified natural environment. Sights and sounds of humans are readily evident, and the interaction between users is often moderate-to-high. The natural setting is culturally modified to the point that it is dominant in principal travel corridors.

Semi-Primitive Motorized - This ROS setting is characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Concentration of users is low, but there is often evidence of other users. The area is managed with minimal or subtle onsite controls and restrictions. Motorized use is permitted.

ROS settings are characteristically buffered by the adjacent settings in the continuum. The CBS, however, is a unique geographical area requiring application of local knowledge and features for ROS to be meaningfully applied. In particular, local topography adequately buffers portions of the CBS so that a desired ROS setting may occur in an area that would be considered too small under normal ROS applications. A good example of this situation is the ocean beaches where the foredune and wave action combine to visually and audibly screen the area from inland activity despite the narrow geographic layout. In other areas, active and vegetated dunes screen visitors from the sights and sounds of other human activity that may otherwise disrupt a particular ROS setting.

Economic Impact of Coastal Attractions and the Travel Industry

The travel industry in Oregon is the state's third largest export-oriented industry with a gross product of approximately $1.8 billion (1986 dollars). Travel and tourism are exceeded only by agriculture and forest products (Runyan 1989). Local traffic volumes on State Highway 101 range from 4 million per year, to 6.2 million, with the low end estimated to consist significantly of regional "through" traffic.

The combination of activities present on the CBS is typical of attractions that draw individuals to the coast in general. This suggests that average daily expenditures of recreationists from activity on the CBS are relevant to evaluating potential contributions to local economies. The average daily expenditure per party for out-of-state visitors is approximately $135—a little over 60 percent of the travel industry product. In contrast, in-state visitor expenditures are somewhat less at approximately $108, or roughly 40 percent of the travel industry. The Oregon Coast is the most popular travel destination in the state (Runyan 1989).

The socioeconomic climate of the Coos Bay region also suggests several reasons why recreation and tourism initiatives would yield positive results. In 1989, the Oregon Economic Development Department (OEDD) conducted SWOT (Strengths, Weaknesses, Opportunities and Threats) analyses on 13 western Oregon communities that had economic losses associated with declines in the timber industry. The OEDD found a wide variety of social and cultural factors important to economic development. The strengths identified in these communities included diverse recreational opportunities and unique community characteristics tied to location, culture and history. The major opportunities that were identified were associated with tourism and recreation (Richardson 1993). Characteristics of the CBS match these strengths and opportunities.

Recreation Demand

The State Comprehensive Outdoor Recreation Plan (SCORP) has combined supply and demand analyses to produce need rankings for popular forms of outdoor recreation and outdoor recreation facilities. The Coos Bay Shorelands is located in SCORP Region 6.

Campsites - For campsites, Region 6 has 11 percent of supply but only 7 percent of use (see Table 3-2). This produced a regional needs ranking of 8 out of 9 regions, despite a 37 percent projected increase between 1987 and 2000. The overall setting preference was roaded natural.

Hiking - For hiking trails, Region 6 has 4 percent of supply while having 6 percent of use. This produced a regional needs ranking of third highest among nine regions. Demand for trail dayhiking is expected to increase by 53 percent between 1987 and 2000 in Region 6 (SCORP 1991). The overall setting preference was semi-primitive with minimal motorized presence.

Bicycling - Region 6 has 2 percent of supply and 3 percent of use of designated bicycle trails. This produces a regional needs ranking of fourth among nine regions with only a 7 percent increase projected between 1987 and 2000. Setting preference was roaded natural.

Jogging/Running Paths - Region 6 has 3 percent of supply with 10 percent of use. Regional needs ranking placed it third out of nine regions with a projected use increase between 1987 and 2000 of 79 percent. Setting preference was roaded modified.

Off-Highway Driving - Region 6 has 6 percent of supply and an equal percentage of use. This produced a regional needs ranking of sixth out of nine regions. Demand for off-highway riding opportunities is expected to grow by 39 percent between 1987 and 2000. Setting preference was roaded natural.

Picnicking/Day-Use - Region 6 has 5 percent of supply and 11 percent of use. Regional needs ranking was second out of nine regions with a projected growth between 1987 and 2000 of 36 percent. Setting preference was roaded natural.

Interpretation of SCORP Data

See Table 3-3 for a summary of the above SCORP information. Where use exceeds supply, the demand exceeds the supply of facilities. Use levels may be dictated by access, crowding, lack of knowledge of facilities, or other social and management related issues. In other cases, low use may be related to low supply. However, SCORP does not evaluate these parameters. Instead, they based the needs ranking on a use/supply ratio—that is, the most use per unit of supply was said to have a greater need for facility development. Also, only dominant setting preferences are listed, which may or may not represent a majority.

Table 3-2. Campground Occupancy Rates in Horsfall Corridor

Campground	Percent Occupancy (Year-Round, 1991)	Percent Occupancy (May - September)
Horsfall	19	54
Wildmare	11	31
Bluebill	28	77
Horsfall Beach	20	25

Camping and Day-Use - Camping on the CBS is a recognized traditional use. The typically unconstrained nature of public lands recreation has, however, resulted in a variety of impacts that either are inconsistent with long-range stewardship of these lands, or produce conflict. Specifically, excessive roadside litter, unsanitary conditions, and vegetation trampling occur to an undesirable level. In addition, over the last several years, some groups have set up permanent camps on parts of the public domain within the CBS. These conditions and actions have not only increased the level of recreational impacts, but also limited the availability of high quality sites to the broader public. This situation has resulted in conflict between regional visitors and local users.

Day use typically has the same type of impacts as camping, but with a lower intensity. The larger numbers of individuals utilizing the CBS for day use may, however, offset its lower intensity.

Economic Impact and Tourism Related to Camping and Day-Use

Approximately 62 percent of all visitors to Oregon spend at least some time on the coast, attracted by the natural resources that are unique to the area (SCORP 1991). Approximately 15 percent ($266 million) of the travel industry product is directly attributable to individuals who camp. Of that, roughly half is attributable to public campgrounds camping. An additional 13 percent ($225 million) of the $1.8 billion industry product derives from day use. The large figure for coastal visitation, when combined with the economic data presented above, suggests that as much as 12 percent of the total economic impact of the travel industry is related to coastal natural resources packaged as day use or camping products.

While computation methods for estimating camping and day use are imprecise, camping and day use attractions are the typical types of products provided by public lands managers. Consideration should also be given to studies showing that out-of-state visitors to Oregon plan their overall route but not individual stops, which suggests their openness to marketing influences. This characteristic, combined with high coastal visitation, indicates that increasing the availability of the resources in demand has potential to channel a greater portion of tourist dollars to local tourism economies. The potential, of course, is even greater if coupled with successful marketing.

Local Demand

Aside from the SCORP data, there is detailed occupancy information from the Horsfall corridor in the adjacent Oregon Dunes NRA (see Table 3-2). With the exception of the estuarine portions of the CBS, four campgrounds in this corridor have similar resources to the CBS. Occupancy rates indicate that these facilities are not running at capacity, supporting the SCORP findings that supply exceeds demand for this type of facility.

OHV Use

Approximately 260 acres (8 percent) of the land within the CBS planning boundaries are high quality OHV riding areas. This area is, however, closely interspersed

Table 3-3. Summary of SCORP Data

Activity	Needs Ranking	Percent of Supply	Percent of Use
Campsites	8	11	7
Hiking	3	4	6
Bicycling	4	2	3
Jogging/Running Paths	3	3	10
OHV Driving	6	6	6
Picnicking/Day-Use	2	5	11

with wetlands and their associated resources. On the CBS, as well as in other areas, All Terrain Vehicle (ATV) trespass into areas closed to protect plants, sensitive habitats, and non-motorized recreation has been a recurring problem (USDA 1992).

Regional Supply and Demand of Riding Opportunities

The ODNRA has released a draft plan that affects OHV riding in the Coos Bay/North Bend area. Prior to release of the draft plan, ODNRA had 15,500 acres open to OHV use. The ODNRA preferred alternative reduces this area to 7,700 acres, or about half of the previously open area. The 260 acres of riding area on the CBS represent a potential increase of approximately 30 percent in ridable terrain of similar quality. As noted in the SCORP demand projections, current use (6 percent of statewide use) is equal to supply (6 percent of statewide supply). Reductions proposed by the ODNRA would reduce the percent of supply, creating a gap between demand and supply, but keeping other factors constant. Considering ridership projections from the Motorcycle Industry Council (1992), however, these reductions would be offset by reduced ATV ridership participating in off-highway riding.

Ecological Communities

This section describes historical conditions and current ecological communities on the CBS. Ecological communities are described first, followed by descriptions of the habitat types and wildlife species present. Species of special management concern (i.e., candidate, threatened or endangered species) are addressed in subsequent sections.

Historical Conditions

Historical conditions on the CBS include an extensive network of active dunes characterized by blowing, shifting sands that produced seasonal variations in local topography, plant communities, and the wildlife dependent on them. Plant and wildlife habitat have both changed considerably the last 100 years as a result of human activities. A particular example on the CBS is the introduction of European beachgrass. Prior to beachgrass introduction, foredunes were low, rose gradually, and were dominated by the American beachgrass; interior dunes migrated seasonally across the land. European beachgrass is responsible for the development of steep foredunes on the beaches and stabilized hummocks in the interior (Wiedemann 1966). In some stands, this species completely excludes native vegetation.

Beach: General

The BLM manages the portion of the beach between mean high tide and the foredune on those sections of ocean beach where BLM has upland jurisdiction. Beaches below mean high tide (about 6.5 feet in elevation or roughly the driftwood line) are administered by Oregon Parks Department. Although the BLM does not administer the beach lands below mean high tide levels, the vegetation and wildlife species using this habitat are directly affected by adjacent uplands management. Habitat alterations, changes in predator populations, and disturbances caused by motorized and non-motorized recreational uses in the uplands can directly and indirectly affect the wildlife species using the beach habitats.

The ocean beaches are low gradient sand beaches with little vegetation present below the high tide line. These beaches are backed by a tall, well-stabilized foredune vegetated with European beachgrass. Ocean currents and severe wave action regularly alter the width and height of the beach through erosion or deposition of sand. These habitats support a rather sparse, but unique plant community that is an important foraging area for certain wildlife species.

Beach: Botanical Resources

Common plants of the upper beach include:

- Beach morning glory (*Calystegia soldanella)*
- Beach silver-top (*Glehnia littoralis* spp. *leiocarpa)*
- American bluegrass (*Poa macrantha)*
- American dunegrass (*Elymus mollis)*

The majority of the plant species on the upper beach are native early colonizers which begin sand stabilization. In addition, the CBS is within the historical range of pink sandverbena (*Abronia umbellata* ssp. *brevifolia*), a federal candidate, category 2 and State of Oregon endangered species. While no occurrences of this species are currently known to occur on the North Spit, some areas of its potential habitat are still present. Along the beach there are scattered populations of yellow sandverbena (*Abronia latifolia*), which is on the Oregon Heritage Program List 3 (indicating more information is required before status can be determined).

Beach: Wildlife Resources

The combination of aquatic and terrestrial invertebrates, fish, and carrion found on the beach provides a rich food source which attracts a variety of wildlife species. Shorebirds, including sandpipers and plovers, are one of the most abundant groups using the beach habitats. They forage primarily on the beaches and mudflats and eat insects, shellfish, and other marine invertebrates.

Several species, most notably the threatened snowy plover, also use the ocean beach habitats for nesting. These birds lay and incubate their eggs in small scrapes on the ocean beach. After hatching, the flightless chicks forage in the vicinity of the nest sites until they fledge (Sterns, M. pers. comm.). In combination with the two dredge material disposal sites, the ocean beaches of the North Spit provide the nesting habitat for the largest coastal breeding population of snowy plovers in Oregon (USFWS 1993).

Larger birds such as gulls, terns, ravens, and crows regularly use beaches as both foraging and resting sites. These birds feed opportunistically on a variety of shellfish, carrion, insects, bird eggs and chicks. They also use the beaches as resting sites, often congregating in large single species or mixed flocks just above the reach of the waves. Individual birds also rest along the beaches.

Several raptors—including the peregrine falcon, bald eagle, osprey, northern harrier, and turkey vulture—have been documented using the CBS beaches during some part of the year (Northwest Biological Consulting 1980). Birds are a major food source for these raptors, especially for peregrine falcons which feed primarily on medium-sized birds (Farrand 1987). The concentrations of shorebirds using the beaches provide an important prey source for these species. Northern harriers and bald eagles, both resident in the Coos Bay area, forage along the beaches throughout the year. During the spring and fall, peregrine falcons hunt the large flocks of migrating shorebirds and waterfowl that use the CBS. Most raptor species forage opportunistically, not only on birds, but on carrion found on the beach. Turkey vultures feed almost exclusively on carrion.

A variety of terrestrial mammals are known or suspected to use the beaches of the CBS. Raccoon, mink, skunks and various small rodents commonly forage along the beaches for shellfish, carrion, insects and other invertebrates. Black bear, bobcats and black-tailed deer are suspected to use these areas, too, but less frequently than the other mammals.

Open Sand: General

Introduction of European beachgrass in the 1880's has stabilized most of the historically open sand areas, speeding the rate of vegetative succession (Sharp and Smith 1991). Even with its vegetative growth, the CBS has four sand dune types (Northwest Biological Consulting 1980). The four sand dune types are considered a single habitat type consisting of 260 acres of remnant active sand dunes located in T. 25 S., R. 14 W., Sections 13 & 24 and in T. 25 S., R. 13 W., Sections 18 & 19. The central dunes are unvegetated, actively-moving sand interspersed with numerous small seasonal wetland sites, beachgrass hummocks, and small patches of conifer forest. These areas continue to shrink as beachgrass stabilizes their borders. The recreational use of off-highway vehicles on these sites has served to maintain open sand trails in some areas.

A second open sand habitat type exists at two dredge material deposition sites totaling 37 acres. The 24-acre site in T. 25 S., R. 14 W., Sections 26 and 35 is managed by the Corps of Engineers. The 13-acre site in T. 25 S., R. 13 W., Section 7 is managed by the BLM. These sites were created by the deposition of 2-6 feet of bay channel benthic sediment and salt water in the late 1970's (Dorsey. G. pers. comm.). European beachgrass has invaded both sites, stabilizing the open sand and creating numerous vegetated hummocks.

Open Sand: Botanical Resources

Active dunes typically support little or no vegetation except for widely scattered hummocks of European beachgrass (*Ammophila arenaria*) with occasional intrusions of beach lupine (*Lupinus littoralis*). A similar pattern exists for spoil deposition areas.

Following deposition, the two dredge spoil sites (one totaling 24 acres, the other 13 acres) remain unvegetated for several years before European beachgrass begins to establish. Currently, the 24-acre site remains predominately unvegetated with only a few large beachgrass hummocks in the site's interior. Beachgrass has more successfully colonized the 13-acre site. Much of the original open sand area is now dominated by sparse-to-moderate levels of European beachgrass despite several maintenance projects designed to reduce beachgrass densities.

Open Sand: Wildlife Resources

The open sand habitat is characterized by two distinct types—the naturally occurring central dunes, and the human-caused dredge disposal areas.

Central Dune Habitats

The value of natural upland sand dune habitats for wildlife is not well documented, but these areas may play an important ecological role for some species. Open sand habitats with little or no vegetation are used extensively by certain species of insects and invertebrates—primarily beetles, centipedes and millepedes. Barn swallows forage heavily on the flying insects found just off the surface of the sand. There is evidence that crows, turkey vultures, or other birds use these areas for resting and foraging.

Small mammals use the central dune habitats, but likely concentrate their foraging activities near the edges of the open sand habitats where nearby vegetation provides cover. The small amount of hiding cover and the vulnerability of prey in the open sand habitats may make these areas valuable foraging habitat for many animals. Prey species that may use the area include raptors (northern harriers and kestrels), fox, coyote and other species that utilize insects, rodents and reptiles as a major food source. Burrowing owls have been documented foraging and roosting in the open sand habitats during the winter months.

Dredge Disposal Site Habitats

The two dredge material disposal sites located on the CBS provide important nesting habitat for the threatened snowy plover. Snowy plovers establish nests on the open sand sites; after hatching, the chicks forage exclusively on these sites for several weeks until capable of flight to the ocean beaches (Sterns, M. pers. comm.). Both sites are managed as protected snowy plover nesting habitat; they are fenced to protect the plover nests from disturbance by OHV use and to reduce nest predation. In combination with the North Spit ocean beach, the southern disposal site provides the nesting habitat for the largest coastal breeding population of snowy plovers in Oregon (USFWS 1993).

A variety of other wildlife species also uses the dredge material habitat sites. Killdeer forage and nest on these sites. Burrowing owls winter on the 13-acre area. Skunks, mink, coyote, and fox forage on portions of both dredge material sites. Crows and ravens—primary snowy plover predators—forage on these sites for bird nests and other prey (Sterns 1992).

Stabilized Sand: General

The stabilized sand communities are quite variable, ranging from early seral stage habitats characterized by sparsely vegetated areas of sand with scattered beachgrass hummocks, to habitats with more developed plant communities dominated by dense beachgrass stands with scattered clumps of shrubs, shorepine and Sitka spruce.

The stabilized sand areas include the foredune and hummocks adjacent to the wetland portions of the deflation plain. The foredune is a long, continuous ridge of grass-covered sand paralleling the beach above high tide line. It has developed since the 1930s, and also since the introduction of European beachgrass. Beachgrass eventually spread to all central Oregon beaches through tidal and current drift.

Over the past several decades the foredune has become a precipitous bank, defining the upper beach boundary and eliminating the migration of wind-blown sand that previously supplied active inland dunes.

Stabilized Sand: Botanical Resources

The foredune is composed of dense stands of European beachgrass with sparse occurrences of other herbaceous species. Several areas are beginning to establish a variety of shrubby species, such as coyote brush (*Baccharis pilularis*) and scotch broom (*Cytisus scoparius*). Scattered occurrences of tree species include young shore pine (*Pinus contorta*) and Sitka spruce (*Picea sitchensis*). Hummocks formed by stabilizing sand occur throughout the North Spit. These communities are also dominated by European beachgrass with a small component of herbaceous species. Like the foredune, older hummocks may have shrubs and trees. No habitat for any special status plant species occurs on either the foredune or hummocks.

Stabilized Sand: Wildlife Resources

Because there are similar wildlife values on the three stabilized sand communities (foredune; occasionally wet, stabilized hummocks; and dry hummocks), they are described together. A variety of small mammals, reptiles, insects and other invertebrates are found throughout these areas. Many of the rodents and insects forage on available plant seed and vegetation. Most of the reptile species are predatory, feeding on invertebrates and small mammals. All of these species are important prey for other predatory mammals and birds.

Black-tailed deer and rabbits forage throughout these communities, but prefer areas adjacent to or within the larger clumps of shrubs and trees which provide cover. Many passerine bird species also utilize this habitat, feeding on abundant seed, vegetation and insects. Skunks, fox, coyotes, raccoons, mink and bobcats utilize this area, preying opportunistically on small mammals, birds, eggs, reptiles and insects.

Burrowing owls have been documented roosting and foraging in the sparsely-vegetated hummock areas during the winter months. These areas are also used for foraging throughout the year by northern harriers, red-tailed hawks and bald eagles. Raptors use all of the stabilized sand habitats, but the sparsely-vegetated areas are suspected to provide better hunting where small mammals and reptiles are more vulnerable to attack by aerial predators.

Because the vegetation on the stabilized sand communities is vigorous, the effects of unmanaged off-highway vehicle use have been limited. The numerous roads and trails receive moderate-to-heavy use by off-highway vehicles, resulting in considerable disturbance to wildlife associated with these habitats. Thick vegetative cover, however, provides security for many wildlife species, which reduces some impact from recreational use and from predators.

Fresh-Water Wetlands: General

A variety of wetland types exist including: fresh-water marshes, bogs, ponds, shrub lands, and thickets. Wetland habitats are scattered throughout the North Spit deflation plain. These habitats vary from early seral stage or ephemeral wetland sites dominated by sedge, rush and grass species, to later-seral stage wetlands supporting moderate-to-dense communities of willow, bog blueberry, and other wetland species.

Most of the fresh-water wetlands have been altered by roads and vehicle trails from unconstrained OHV use. Vehicle trails cutting through these areas have created open unvegetated corridors, decreasing the effective size of habitat blocks and increasing the amount of edge habitat present. Roads and trails border and often completely surround many wetlands, destroying the shrub cover that shelters the interior of the habitats from people, predators and the weather.

Offshore winds continue to move the remaining open sand eastward toward the bay, stripping sand from the east edge of the deflation plain and further exposing the water table. This yearly cycle of sand removal by wind erosion and consequent exposure of the water table forms an ever-widening strip of densely-vegetated lowland. Because the soil surface of the deflation plains are at the summer ground water level, only plants tolerant of perennially wet soils can survive. The deflation plains are true wetlands (ODNRA DEIS).

Fresh-Water Wetlands: Botanical Resources

The most common species occurring in these wetlands are sedges (*Carex* sp.) and rushes (*Juncus* sp.). These communities are typically early seral stages. Wetlands in a later successional stage typically have willows (*Salix* sp.) and bog blueberry (*Vaccinium uliginosum*). Eventually these areas would intergrade into shrub/forest community consisting of wax myrtle (*Myrica californica*), evergreen huckleberry (*Vaccinium ovatum*), shore pine and many other shrubs. Habitat for common adder's-tongue (*Ophioglossum pusillum*), an assessment species, is present in these early successional fresh-water wetlands, but no populations of this species have been located on the Coos Bay Shorelands.

Fresh-Water Wetlands: Wildlife Resources

Fresh-water wetlands are comprised of three habitat types: deflation plain seral wetlands, lakes and ponds, and bogs.

Deflation Plain Seral Wetlands

Five of the wetland plant communities identified in the Dunes NRA Resource Inventory (USDA 1972) are found in the deflation plain of the CBS. These are marsh, deflation plain-low shrub, deflation plain-tall shrub thicket, deflation plain-grasses, rushes, and sedges and hummocks-occasionally wet. These habitat types result from similar geological and hydrological conditions, but represent different seral stages in the development of the plant community. Many of the wildlife species associated with wetlands use several or all of these habitats, and often on the CBS all five habitat types are found in close proximity or intermingled. Due to the similar wildlife communities of these habitats, all five deflation plain seral wetland types are described together in this section.

The fresh-water wetlands of the deflation plain support a diverse wildlife community and are some of the most productive habitats on the CBS. Many aquatic invertebrates, amphibians and birds depend on these wetland sites for the majority of their habitat requirements, and most of the wildlife species on the CBS use these habitats sometime during their life.

All five types of fresh-water wetlands are inhabited by a great variety and abundance of invertebrate organisms which are preyed upon by various species of wildlife. These habitats also provide critical breeding and rearing habitat for most of the amphibian species on the CBS, including red-legged frogs (a federal candidate, category 2 species). Amphibian adults also depend on wetland sites throughout the year for foraging and regulation of their internal temperature and moisture. Fish such as the three-spined stickleback inhabit the permanent wetlands, foraging on vegetation and aquatic invertebrates.

Mammals and birds use all five wetland types, but the more structurally diverse low shrub and thicket habitats provide habitats for more species (USDA 1972). The diverse vegetation and vertical structure provide abundant food sources and shelter for mice, muskrats, voles, rabbits and other small mammals. Predatory mammals (which include shrews, mink, skunks, bobcats, fox and coyote) forage heavily on invertebrates, amphibians, birds, and small mammals using these marshes. During the spring and summer, bats forage extensively on the flying insects that inhabit the wetland sites.

Fresh-water wetlands provide important habitat for a variety of bird species. About one-third of the North American bird species use wetlands during some part of their life, and approximately three-quarters of these species are non-game birds whose ecological significance is poorly understood (Sather and Smith 1984). The fresh-water wetlands of the North Spit support one of the most diverse bird communities. This diversity results from the wetland's combination of complex habitat features and an abundance and variety of available food sources.

Numerous species of waterfowl, herons, egrets, kingfishers, and a variety of shorebirds forage on the aquatic plants, invertebrates, fish and amphibians inhabiting these marshes and thickets. Some of the notable species that nest here include mallards, common snipe, Canada geese, and Virginia rails. Many passerine species use the fresh-water wetlands seasonally or throughout the year. Species such as black birds, swallows, and marsh wrens nest in these habitats.

The abundance of other birds, amphibians, and small mammals that live in the fresh-water wetlands attracts northern harriers, merlins, red-tailed hawks, peregrine falcons, and bald eagles which frequently forage in these habitats. Although no nest sites have been documented on the CBS, northern harriers are suspected to nest in the dense willow thickets found in the fresh-water marshes.

Lakes and Ponds

Numerous small open water ponds are located immediately north and south of the effluent lagoon and intermixed with the fresh-water marshes of the deflation plain. Some of these ponds are naturally occurring, while three were created by private landowners as part of the required mitigation measures for the filling of Henderson Marsh. The area north of the effluent pond is a potential site for additional wetland mitigation projects to offset future filling of other portions of the Henderson Marsh.

These ponds provide areas of open water adjacent to the more heavily vegetated fresh-water shrub lands and thickets. In addition, these ponds support a diverse community of aquatic invertebrates, fish and amphibians. The ponds and many of the species inhabiting them are important food sources for other animals. The open water sites of the CBS are not considered high quality nesting habitat for most waterfowl, but are used for foraging by a variety of migrating waterfowl during spring, fall and winter. Bufflehead, mallards, and scaup are common on these sites: ruddy ducks, cinnamon teal and ring-necked ducks have been documented (Thornburgh 1991).

The wetland vegetation around many of these ponds has been damaged by unrestricted use of OHVs. In particular, attempts by private landowners and state land management agencies to protect wetland mitigation sites from vehicle damage through signing and physical barriers have failed. Unauthorized OHV use has compromised the value of these sites for wildlife (Holbert, C. pers. comm.). The border of one mitigation pond appears to be used as an OHV race track. The vegetation surrounding this pond has been eradicated in a wide swath around the shore, eliminating cover and most subsequent wildlife use (Collins, J. pers. comm.).

In addition to the small fresh-water ponds, the 191-acre effluent lagoon currently leased by Weyerhaeuser for the treating of pulp mill waste water also provides some habitat for wildlife. The effects of effluent on these species, however, is unknown. Waterfowl have been documented using the southwest portion of the lagoon as resting and feeding sites. Canada geese and mallards nest and raise broods on this pond. The effluent pond does not support any willow species along its borders even though immediately adjacent sites support dense willow thickets. Lack of oxygen in the water caused by the waste decomposition process is believed to be associated with the absence of willows. Another contributing factor to the willow absence may be that the effluent pond is surrounded by roads which receive heavy OHV use year round.

Bogs

Two bogs are located on the Coos Bay Shorelands, one on the North Spit and the other south of Coos Head. These habitats are characterized by year-round standing water and are dominated by mosses and sedges. The bog south of Coos Head is potential habitat for western lily (*Lilium occidentale*), a species proposed for listing under the Endangered Species Act. No populations of this species were located during surveys done in June 1992.

The value of bog habitat for wildlife is not well documented, but the year-round standing water is suspected to be important for certain amphibians, as well as many insect and invertebrate species. Many wildlife species that inhabit the surrounding coniferous forests are thought to use the bog sites as well.

Forested Communities: General

Three of the forested plant communities described in the Oregon Dunes NRA Resource Inventory are found on the CBS (Northwest Biological Consulting 1980): Deflation Plain Shorepine Forest, Shorepine Forest Ridge, and Transition Forest. The Deflation Plain Shorepine Forest follows the establishment of thickets in the deflation plain wetlands. The overstory of this forest type is dominated by shorepine with occasional Sitka spruce and supports a moderate shrub community of salal, evergreen huckleberry, willow and wax myrtle (USDA 1972). The Shorepine Forest Ridge and Transition Forest communities have developed on stabilized dunes primarily along the eastern side of the North Spit deflation plain and the eastern edges of the open sand communities. These two forest types have a relatively open canopy of shorepine and Sitka spruce with a dense shrub layer dominated by rhododendron, evergreen huckleberry, and salal.

Roads and OHV trails have been pioneered through many of the forested habitats on the CBS. These trails are destroying the vegetation and rapidly eroding thin soils. Sitka spruce on stabilized dunes are undercut as much as three feet, causing toppling and mortality. These open trails also provide additional opportunities for non-native species to invade native plant communities.

Forested Communities: Wildlife Resources

The forested communities provide important habitat features not found in other areas on the CBS. The Transition Forest habitat types supported the greatest diversity of wildlife species on the Dunes NRA (USDA 1972). The shorepine and Sitka spruce forests provide greater structural habitat diversity than the other habitats of the CBS. The trees, snags and down logs not found in other plant communities on the CBS provide important breeding and foraging habitat for a variety of wildlife species. Upland amphibians (such as the western red-backed salamander and ensatina) require down logs for year-round habitat. Many bird species (including owls, hawks, woodpeckers, egrets, thrushes, herons, crows, jays and numerous song birds) nest and forage in these habitats. Woodpeckers, nuthatches and brown creepers forage primarily on the insects found in trees, snags and down logs.

One of the most notable wildlife habitat sites of the CBS is the North Spit rookery where both great blue herons and great egrets nest. One of only seven sites known in Coos County, this rookery is considered an important site by the Oregon Department of Fish and Wildlife. Dan Van Dyke (pers. comm.) provided the following discussion of the value of this rookery.

"As is apparent from the 1991 active nest count, the rookery on the North Spit is of significant importance for the great blue heron in Coos County. The site is not only the second most productive in the county, but is also still the most isolated, a major factor in protecting site integrity. . . . Our consensus at ODFW is that protection of the rookery should be one of the primary objectives of wildlife management on the North Spit."

At least 35 mammal species (including deer, coyotes, bats, fox, raccoons, skunks, rodents, mink and bobcats) use the forest habitats for security, cover, foraging, and shelter from the elements (USDA 1972).

Estuarine Resources: General

The Coos Bay estuary is the largest in Oregon, totaling 12,380 acres and extending for over 10 miles along the North Spit (Northwest Biological Consulting 1980). Although the BLM does not administer the estuary resources nor the beach lands below mean high tide levels, the wildlife species using these habitats are directly affected by adjacent uplands management. Habitat alterations, changes in predator populations, and disturbances caused by motorized and non-motorized recreational uses can directly and indirectly affect the wildlife species using the estuary.

Estuaries are among the most productive environments. As interfaces between salt and fresh water, and between terrestrial and aquatic habitats, estuaries receive large influxes of nutrients from watersheds, marshes, and the tidal prism. This nutrient interception process creates a very rich and productive environment (Northwest Biological Consulting 1980). The variety of habitats found in this environment support a rich and diverse wildlife community.

Estuarine Resources: Wildlife

Wildlife habitat contained within the estuarine resource includes mudflats, sandflats, and open water.

Mudflats/Sandflats

Most of the North Spit's bay side have mudflats and sandflats. These areas are tidally-inundated, highly productive habitats that support an abundance of marine invertebrate species and include many of the more productive shellfish beds of Oregon's south coast (Northwest Biological Consulting 1980). These sandflats and mudflats also provide high value foraging habitat for a variety of birds and mammals. Shorebirds congregate in these habitats, especially during the low tides, to forage on the invertebrates in the shallow waters and exposed mudflats (Varoujean 1985). These habitats provide an abundant and continuous food source for resident species, as well as a rich foraging site for migratory species. Coos Bay is one of the six most important areas for shorebirds between San Francisco Bay and British Columbia (Joint Venture 1993).

Wading birds (primarily great blue herons and great egrets) feed year-round on small fish and invertebrates in the shallow waters just below the tide line. The North Spit mudflats consistently supported the greatest number of wading birds in the Coos Bay estuary (Varoujean 1985). The concentration of shorebirds and wading birds in these habitats provide valuable prey for bald eagles, northern harriers and peregrine falcons. Ravens, gulls, raccoons, mink and skunks all forage in the shallow waters and exposed flats for shellfish, invertebrates and carrion.

Open Water

The open water habitats of the Coos Bay estuary include both shallow and deep water habitats used by a very diverse community of wildlife species. Waterfowl are well represented, with a variety of geese, ducks, grebes, cormorants, pelicans, loons and terns foraging on the estuary's abundant fish and invertebrates. Numbers and species diversity vary throughout the year, but are highest during the spring and fall migrations. The estuary adjacent to the CBS supports some of the higher numbers of dabbling ducks in the Coos Bay estuary system (Varoujean 1985). A March 1992 aerial survey of the estuary showed Coos Bay with the third highest count of waterfowl on the Oregon coast (Joint Venture 1993).

In addition to having values for waterfowl in general, the estuary immediately adjacent to the CBS contains eel grass beds which historically provided important habitat for wintering black brant (Joint Venture 1993). Although brant no longer winter in Coos Bay, this habitat is still used as a stop-over by 2,000 to 3,000 black brant during the spring migration. As the only spot between Humboldt Bay and Newport that provides the habitat and forage needed by these birds, the Coos Bay estuary may serve as an important overflow for birds which cannot be accommodated by the Newport site (Hodder, J. pers. comm.).

Resident bald eagles and osprey feed upon both fish and waterfowl using the bay. The bay's open water habitat may be important to the nesting success of two or three bald eagles that may nest in the vicinity of the CBS (Van Dyke, D. pers. comm.). Peregrine falcons are not known to be resident, but waterfowl are important food sources during spring and fall migrations through the area.

Harbor seals and California sea lions forage within the open water of the estuary throughout the year and use the north end of the dredge material islands just south of the

Anadromous facility as a regular haul-out site (Brown, R. pers. comm.). Although foraging seals do not appear to be affected by activities on the shorelands, they are very sensitive to disturbance on their haul-out sites.

Salt-Water Marshes: General

Salt marshes are a very limited habitat type on the CBS (Northwest Biological Consulting 1980), with only two occurring within the planning boundary. The salt marsh along the bayfront just south of the Anadromous facility (hereafter referred to as the southern saltmarsh) is a remnant native habitat (Graybill pers. comm.). This area is remnant because across all habitat types on the CBS, this is one of the few unaltered by European beachgrass establishment.

The other salt marsh (hereafter referred to as the northern salt marsh) is adjacent to the effluent pond on the north. The two salt marshes have very different habitat characteristics and provide different values for wildlife species.

The bayfront salt marshes are subjected to daily tidal flooding with habitat types both above and below the mean higher high water. The marsh above the mean higher high water is occasionally inundated by tides while the lower salt marsh is subjected to tides twice a day. These salt marshes develop around well documented seral processes. Salt marsh habitat develops in estaurine settings in areas where reduced current velocity allows the deposition of fine sediments.

The process normally occurs from points of higher elevation, usually non-tidally influenced uplands, to points of lower elevation. Sediment accretion and subsequent establishment of pioneer vegetation suited to regular salt or brackish water submergence is the normal developmental sequence. Once early seral vegetation is established, more favorable conditions for sediment deposition occur because the vertical structure created by vegetation further reduces current velocity. A variety of organic and inorganic substrates may accumulate rapidly. As vertical relief builds, submergence frequency is reduced, altering site characteristics and suitability of the habitat for different plants. In well-developed salt marshes, sediments have deposited around drainage channels which has further increased the structural diversity of the habitat type. The southern salt marsh is approximately 17 acres in size and borders the beach on both sides of the dredge disposal lobe.

The northern salt marsh is a much more complex habitat. This area was created by the installation of a reverse tide gate as partial mitigation for the filling of the Henderson Marsh. The tide gate allows salt water into a large fresh-water wetland (Holbert, C. pers. comm.). The salt marsh is well developed near the location of the reverse tide gate, but merges into a brackish habitat and, finally, into fresh-water wetlands as the distance from the tide gate increases.

The lower salinity of the area adjacent to the northern salt marsh allows more diverse vegetation than is found in the southern saltmarsh. This wetland is deeper and has steeper banks than wetlands elsewhere on the CBS. There is only one small connection to the estuary. The soils of the northern marsh are rich in contrast to the relatively sterile beach sands and support a variety of other sedges, rushes, forbs and shrubs. The large trees and shrubs provide an additional structural habitat component not found in the bayfront marsh. Additionally, the daily influx of salt water into this system has killed many of the conifers, willows and large shrubs growing near the tide gate, creating a standing dead and fallen woody habitat component.

Salt-Water Marshes: Botanical Resources

Common species occurring in the southern salt marsh include;

- Pickleweed (*Salicornia virginica*)
- Fleshy jaumea (*Jaumea carnosa*)
- Saltgrass (*Distichlis spicata*)

The following 10 special status plant species are known or suspected to occur in the CBS's southern salt marsh:

- Yellow sandverbena
- Pink sandverbena
- Johnny-nip
- Spoonwort
- Salt marsh bird's-beak
- Sea-beach sandwort
- California beach aster
- Western lily
- Western marsh-rosemary, statice
- Adder's-tongue

Details about these plants are included in the Special Management Concern Section under Special Status Plant Species.

No special status plant species are known to occur in the northern salt-marsh.

Salt-Water Marshes: Wildlife Resources

The southern salt marsh is subject to daily tidal flooding, and supports two fish species: the Shiner perch (*Cymatogasten aggregata*) and Bullhead (*Leptocottus aramatus*). A variety of shorebirds, herons, egrets, gulls, crows, and ravens forage on the fish and invertebrates within this habitat type.

The northern salt marsh provides habitat for a wildlife community of aquatic and terrestrial species similar to those identified for the fresh-water wetlands habitats, but with some variations. Use of this habitat by waterfowl, raptors, and wading and song birds is similar to other deflation plain wetlands. The lack of shallow banks limits shorebird use of the area.

The daily influx of sea water into an otherwise fresh-water wetland allows the passage of marine fish and invertebrate species not found in other deflation plain wetlands. Shiner perch and Bullhead are expected to use this salt-marsh as habitat and provide additional food resources for some wildlife species. The daily salt water inundation is attributed to killing many of the willow trees near the tide gate, resulting in an abundance of small snags and dead limbs which support insects for other species to forage.

Other Habitats

Rock Jetties

The rock training-jetty inside the estuary at the southern tip of the North Spit provides roosting habitat for a variety of gulls and foraging habitat for shorebird species such as turnstones which feed on invertebrates inhabiting the rocks. Flocks of California brown pelican, a federally-listed endangered species, utilize the south tip of the North Spit for roosting and feeding (Boccard 1980).

Rock Headlands

The BLM administers a small area of rocky headlands known as Coos Head on the south entrance to Coos Bay. These headlands are primarily steep rock cliff faces which drop straight into the bay. A small boulder beach is at the base of one cliff. These cliffs provide foraging and roosting habitat for numerous bird species, including a variety of gulls, pigeon guillemots, oystercatchers, surfbirds, rock sandpipers and pelagic cormorants. Pelagic cormorants and pigeon guillemots both nest on these rock faces. The public can access these cliffs during low tides from near the Coast Guard lookout station and Bastendorf Beach. The old railroad tunnel which cuts through the headland is potential roosting habitat for bats.

Species of Special Management Concern

The management of special status species and their essential habitats is consistent with the Endangered Species Act of 1973, current recovery plans, habitat management plans, and BLM policy as outlined in Bureau Manual 6840.06 (Special Status Species Management). Special status species include species that are officially listed, proposed for listing, or candidates for listing as threatened or endangered by the Secretary of the Interior under the provisions of the Endangered Species Act (ESA); those listed or proposed for listing by a state in a category implying potential endangerment or extinction; and those designated by each State Director as sensitive.

Special Status Animal Species

There are special management concerns for six special status animal species known or suspected to use the CBS habitats during part or all of the year. These species are: American peregrine falcon, brown pelican, snowy plover, steller sea lion, bald eagle, and Northwestern pond turtle. Table 3-4 summarizes their status and occurrence patterns.

Western Snowy Plover

The federally threatened Western snowy plover's preferred habitat is ocean beaches where it nests above the wrack line, making a shallow depression in the sand in which to lay its eggs. Quite often plover nests occur near a clump of grass or next to debris such as driftwood that has washed high onto the beach at the wrack line. Breeding season for the snowy plover is from mid-March to mid-September.

Research on snowy plovers specific to the North Spit area has been conducted by The Nature Conservancy (TNC) since 1990. For their study purposes, the TNC defines the North Spit by three areas used as plover nest sites: the south beach, the south spoils, and the north spoils.

Table 3-4. Special Status Animal Species Known or Suspected to Occur on the Coos Bay Shorelands

Species	Status	Occurrence
American Peregrine Falcon *Falco peregrinus*	Federal Endangered	Known to forage on Shorelands. Uses beaches and other habitats for foraging.
Brown Pelican *Pelecanus occidentalis*	Federal Endangered	Does not nest in Oregon. Known to forage/roost in the estuary adjacent to the Shorelands.
Snowy Plover *Charadrius alexandrinus nivosus*	Federal Threatened	Known to nest, and forage on the Shorelands. Present throughout the year.
Steller Sea Lion (northern) *Eumetopias jubatus*	Federal Threatened	Documented present.
Bald Eagle *Haliaeetus leucocephalus*	Federal Threatened	No known nesting sites. Known to forage on the Shorelands. Present throughout the year.
Northwestern Pond Turtle *Clemmys marmorata marmorata*	Federal Candidate 2	Suspected to occur within the freshwater wetlands. Documented at one site in the Dunes NRA.

South Beach

The south beach is the last 2.5 miles of ocean beach on the south end of the North Spit. Three snowy plover nests were located there in 1993. In 1992, the majority of breeding on the spit (six nests) occurred within a 1-mile stretch north of the jetty. This section of beach along the North Spit is one of the most important nesting and wintering habitats for the plover on the Oregon Coast (Wilson-Jacobs et al. 1984). Some nests have been located on the open sand while others have been found in association with sparse vegetation. This area of beach currently receives unrestricted OHV use which presents a serious threat to plover nests and chicks. During the 1992 breeding season, biologists found a nest that had been run over; five nests with protective exclosures had been circled at least once by OHVs. Again in 1993, one nest with a protective exclosure had been circled numerous times by OHVs.

South Spoils

The 24-acre south spoils site is located on Corps of Engineer lands on the south end of the spit and managed by the Oregon Department of Fish and Wildlife (ODFW). Among the three breeding sites, the south spoils attracted the greatest number of nests in 1990, 1991 and 1993. In March 1993, ODFW organized a work party to manually pull beachgrass to curtail its encroachment. This labor-intensive control method requires numerous applications to be effective.

Several areas within the 24-acre site have become unsuitable for nesting plovers due to the establishment of dense clumps of beachgrass. Without continued management, the site will eventually become unsuitable for nesting. Another problem common to all plover nesting areas on the North Spit is predation of nests and chicks. According to TNC's 1992 studies, two of four nests on the south spoils failed due to heavy predation by common raven and possibly weasel.

In 1993, the majority of plover breeding on the spit occurred within the south spoils site. TNC biologists located six nests, exclosed four (all hatched and were banded), and left two unprotected (one was predated by a raven and the other hatched and was banded). Five additional broods were found, two of which were captured and banded.

North Spoils

The north spoils plover habitat includes two sites: a 10-acre fenced site, and a 3-acre unfenced site. Plover use of both sites has declined from four nests in 1990 to 0 nests in 1993, possibly due to habitat degradation and disturbance. Greater than 50 percent of the landscape within the 10-acre fenced portion is vegetated, primarily with European beachgrass, making it unsuitable for nesting plovers.

In an effort to restore site suitability and reduce predator cover, the BLM and local ATV groups organized a work party to manually pull and dig beachgrass in the 10-acre nest area. Although most of the west side of the site was cleared of beachgrass, creating approximately 5 acres of open habitat, the TNC has not documented any use of the site by plovers for 1993.

The east side of the 10-acre site is bordered by the Trans-Pacific Parkway, a heavily-traveled road used by the public to access the Coos Bay Shorelands. The site's south end is bordered by a sand road used regularly by ORVs as an access corridor to ocean beaches and the north jetty. Its west side is unfenced and can be easily accessed by mammalian predators which attributed to one nest lost in 1992.

The unfenced 3-acre site is located west of the fenced area and across the road from the 10-acre site. Its northeast end is bordered by a BLM boat launch facility, and its south end abuts International Port of Coos Bay lands zoned for future industrial use. Beachgrass has encroached heavily into the 3-acre area. Although historical records indicate plovers were present at one time, nesting plovers have not been documented there.

Overall for 1993, 100 percent of all documented plover breeding on the Coos Bay North Spit occurred on either the south spoils or the south beach. No plovers were documented using the north spoils area. Trends in number of nests and fledging success support the south beach and south spoils as the primary nesting sites on the CBS. Use of the north spoils site has declined steadily. Recent plover reproductive effort there has had negative results. Although the plover appears to be attracted to dredge spoils for breeding, their small size and the nature of the area makes them an easy target for predators, especially crows and ravens.

Peregrine Falcon

The federal endangered status of the peregrine falcon mandates protection of this species and its essential habitat to comply with the Endangered Species Act and habitat recovery plans prepared subsequent to the Act.

Peregrine falcons, being aerial predators, require open space for overtaking prey on the wing. In this regard, the North Spit is important as a foraging area; falcons often perch on snags in the forested sections of the central dunes and on driftwood along the beach. From these elevated perches, the falcon can survey the areas for potential prey such as ducks, sanderlings, dunlin, killdeer, semipalmated and snowy plovers, and passerines.

While a few peregrines may winter on the North Spit, they primarily move up and down the coast, generally between September and February, shadowing the migration of shorebirds which are an important food source.

Three areas of the North Spit appear to be important habitat for the peregrine falcon: the ocean beach; the forested, stabilized dune in Section 18; and the Weyerhaeuser effluent lagoon. There were 18 peregrine sightings recorded in research done over eight months and totaling 320 observation hours between September of 1985 and May 1986. Five of these sightings were within the forested, stabilized dunes in the east-central portion of Section 18. Most observations were on the beach located north of the Section 13-Section 24 line and in Section 18.

Brown Pelican

The brown pelican, another North Spit species on the federal endangered list, is also afforded protection by the Endangered Species Act and subsequent recovery plans.

The brown pelican does not breed in Oregon but is a common migrant along the coast from April through December with the highest concentrations documented between August and October. Important habitats are ocean waters, coastal shores and other inlet areas adjacent to the North Spit. Clam Island (during low tide) and the rocks forming the old training jetty are two important roost areas for the pelican (Hodder, J. pers. comm.). Adjacent, shallow, subtidal areas are used for foraging. There is, however, no documented use by pelicans of any of the North Spit upland areas.

Bald Eagle

This federally threatened species is resident to Coos Bay. Three known active eagle nests are located in the vicinity of the bay, and at least one pair may occasionally use the spit and surrounding areas. In addition, eagles have been observed flying over the channel and the northern portion of the spit. Habitat types commonly used by the bald eagle are fresh-water, estuarine, and marine ecosystems which provide suitable habitat for foraging, nesting and roosting.

The North Spit is being monitored for bald eagle use by the Oregon Cooperative Wildlife Research Unit in association with Oregon State University. Although the North Spit does not appear to be used regularly by either resident, migratory or wintering eagles, some eagles forage on or about the area. For bald eagles, which are opportunistic foragers, the wetland areas and the surrounding shorelands with their populations of shorebirds and waterfowl offer an abundance of prey. The bulk of the eagle's diet, however, is fish. While there is no documentation of bald eagles nesting on the North Spit, there is potential for suitable eagle nesting habitat as forested upland areas mature.

Steller Sea Lion

Afforded full protection under the Marine Mammal Act of 1972, the federally threatened Steller sea lion is a rare visitor to the Coos Bay area. The Steller sea lion is documented as breeding almost exclusively on the rocky portions of offshore islands. Although the Coos Bay Shorelands do not provide habitat and receive little use by the sea lion, sick or molting marine animals occasionally haul out on the ocean beach.

Northwestern Pond Turtle

A federal candidate currently being considered for listing under the Endangered Species Act of 1973, as amended, the Northwestern pond turtle has not been documented on the Coos Bay Shorelands. The pond turtle feeds primarily on small aquatic invertebrates and is a habitat generalist—e.g., it inhabits fresh, brackish, permanent and intermittent bodies of water from sea level to approximately 4,500 feet in elevation. There has been one sighting at the Dunes NRA.

Other Animal Species of Concern

The Harbor seal, another protected species under the Marine Mammal Act of 1972, frequents the shorelands and is increasing in numbers. Coos Bay has the largest population of Harbor seals in Oregon (Hodder, J. pers. comm.). Important haul-out sites and possible pupping sites for the harbor seal are the dredge lobe on the bay side and the two dredge spoil islands adjacent to the CBS. Pupping occurs during the months of April and May, but haul-out sites are used throughout the year.

Special Status Plant Species

The 10 special status plant species known or suspected of occurring on the CBS require some habitat management (see Table 3-5). These species are special status for various reasons. Some are at the northern or southern extent of their ranges. The CBS marks the southern limit of the subarctic beach flora and the northern limit of the dry mediterranean beach flora. Other species are afforded speacial status because their habitat is in decline or is being impacted from current human uses.

Yellow Sandverbena (*Abronia latifolia*)

Yellow sandverbena is currently a BLM Tracking Species. This species is classified as a dune-maritime endemic, meaning that it only occurs along the beaches of the Pacific Coast of North America. The range of this species occurs from the northern California coast to British Columbia. This species was recently added to the Oregon Natural Heritage Program Review List (List 3) because of its apparent decline due to the encroachment of European beachgrass. Within the CBS, yellow sandverbena occurs as scattered individuals along the upper beaches above the high tide line, and in a few open sand areas behind the foredune.

Pink Sandverbena (*Abronia umbellata* ssp. *breviflora*)

Pink sandverbena is currently a federal candidate, category 2 species by the U.S. Fish and Wildlife Service. It is also listed Endangered by the State of Oregon. This species occurs along coastal beaches and possibly on inland dunes. The historic range of pink sandverbena was from British Columbia to Marin County California. It has since been extirpated from British Columbia and Washington and only 2-3 sites remain in Oregon. The primary threats to this species include competition from European beachgrass and habitat disturbance from off-highway vehicles. Currently, no occurrences of pink sandverbena occur within the CBS, but habitat is present.

Johnny-nip (*Castilleja ambigua* var. *ambigua* syn. *Orthocarpus castillejoides*)

This species was recently added to the ONHP List 3, which makes it a BLM Tracking Species. Johnny-nip occurs in coastal salt marshes and grasslands. The range of this species occurs from central California to southern Oregon. At this time there are no definable threats, but within the CBS, OHV traffic is impacting this species habitat.

Spoonwort (*Cochlearia officinalis* var. *arctica*)

Spoonwort is a BLM Assessment Species. This species is circumboreal and extends south to extreme Northern California. The habitat for spoonwort is coastal bluffs, headlands and off shore sea stacks. Currently, very few populations are known from Oregon and none currently occur within the CBS. One plant was collected from Coos Head in 1926, but has not been relocated. Much of this area has overgrown with woody vegetation and it appears that this population no longer exists.

Salt Marsh (Pt. Reyes) Bird's-Beak (*Cordylanthus maritimus* ssp. *palustris*)

Salt marsh bird's-beak is a federal candidate, category 2 species and is also proposed as threatened by the State of Oregon. The status of the species is currently a federal candidate, category 2 (C2) species, which means that additional information is needed for the Fish and Wildlife Service to propose for listing threatened or endangered under the Endangered Species Act (ESA). The Bureau of Land Management is required to manage Federal Candidate Species in such a way that no authorized action will contribute to the need to list this species as threatened or endangered under the ESA (BLM Manual 6840).

This species grows in the upper salt marshes from Coos Bay Oregon to Morro Bay California. Within the CBS, it occurs on BLM-administered lands in portions of Sections 18 and 19, T. 25 S., R. 13 W. and Section 24, T. 25 S., R. 13 W..

The BLM has been monitoring the population trends of this species for the last three years. Populations have remained relatively constant, with the exception of 1992, when the population decline, probably due to the drought conditions that existed during that year.

An inventory was performed to evaluate the effect that limitations on OHV use would have on the quantity of suitable habitat.

Table 3 -5. Known or Suspected Special Status Plant Species Within the Coos Bay Shorelands Planning Area

Species Name (Common & Scientific)	D/S[1]	Federal Status[2]	ONHP List[3]	BLM Status[4]
yellow sandverbena (*Abronia latifolia*)	D	none	3	TS
pink sandverbena (*Abronia umbellata* ssp. *breviflora*)	S	FC2	1	FC
johnny-nip (*Castilleja ambigua* var. *ambigua*)	D	none	3	TS
spoonwort (*Cochlearia officinalis* var. *arctica*)	S	none	2	AS
Salt marsh (Pt. Reyes) bird's-beak (*Cordylanthus maritimus* ssp. *palustris*)	D	FC2	1	FC
sea-beach sandwort (*Honkenya peploides*)	D	none	3	TS
California beach-aster (*Lessingia filaginifolia* var *californica*)	D	none	3	TS
western lily (*Lilium occidentale*)	S	PE	1	PE
western marsh-rosemary, statice (*Limonium californicum*)	D	none	2	AS
adder's-tongue (*Ophioglossum pusillum*)	S	none	2	AS

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[1] D - Documented
S - Suspected (Habitat present)

[2] Federal Status:
FC2 - Federal Candidate (Category 2)
PE - Proposed to list as Endangered under the Endangered Species Act

[3] Oregon Natural Heritage Program Status:
List 1 - Threatened or endangered throughout range
List 2 - Threatened or endangered in Oregon but more common or stable elsewhere
List 3 - Review list; more information is needed before status can be determined

[4] BLM Status:
AS - Assessment Species
TS - Tracking Species

Inventory findings about salt marsh are:

- There is approximately 50 percent of existing salt marsh compared to the total potential salt marsh.
- There is approximately 50 percent of the salt marsh impacted compared to the total potential salt marsh.

Inventory findings about salt marsh bird's-beak habitat are:

- There is approximately 17 percent of existing salt marsh bird's-beak habitat out of the total potential salt marsh bird's-beak habitat.
- There is approximately 83 percent of impacted salt marsh bird's-beak habitat out of the total potential salt marsh bird's-beak habitat.

Oregon currently has approximately 22 locations of salt marsh bird's-beak, with the majority of them (16 populations) occurring in Coos Bay. Most of the salt marshes in Oregon have been surveyed, and it is unlikely that many new populations will be located in the future. Within Coos Bay, the populations are located in Pony Slough, North Bay, Empire, North Spit and South Slough. Land ownership includes BLM, Division of State Lands, Port of Coos Bay, U.S. Forest Service and various private. Land ownership is difficult to determine in these intertidal zones as the ownership is determined by the mean high tide line.

The species occurs in a highly diverse plant community dominated by glasswort (*Salicornia virginica*), saltgrass (*Distichlis spicata*), and fleshy jaumea (*Jaumea carnosa*). Other associated species include; sea-lavender (*Limonium californicum*), common orache (*Atriplex patula*), salt marsh dodder (*Cuscuta salina*), tufted hairgrass (*Deschampsia cespitosa*), two species of sand spurry (*Spergularia macrotheca* and *S. canadensis*), alkali grass (*Puccinella pumila*), seaside plantain (*Plantago maritima*), and saltwort (*Glaux maritima*).

Other habitat characteristics include; soil salinity of 34-55 ppt (avg 44 ppt) (data only collected in August), sandy substrate covered by 1-10 cm of organic silt, and less that 30 percent bare soil (in summer). Salt marsh bird's-beak appears to be associated with moderate vegetation cover as heavy cover may inhibit seedlings by shading and increased competition.

Seeds germinate in late-winter, early-spring. Seedlings have been observed in February. The stimulus for germination appears to be lowered soil salinity from winter rains. Salinity of the water usually cannot exceed 12 ppt at the time of germination. Individuals begin flowering in late-May through October. Fruits form from July to November.

Under current conditions (No Action), this species is seriously impacted by OHV use. Human caused threats include habitat loss from development, OHV use, and possibly pollution. The primary threat is loss of habitat from development. No information has been documented on the amount of salt marshes lost in Oregon. Of the remaining salt marshes in California and Oregon, however, very few are guaranteed protection.

OHV use is the most visible type of disturbance occurring in salt marshes on the Coos Bay Shorelands. Areas of dense salt marsh vegetation are completely eliminated wherever vehicular traffic persists. Since most OHV drivers tend to avoid the lower, muddier, salt marsh habitats, most of the damage occurs in the upper and drier salt marshes, which coincides with this plant's obligatory habitat. This impacts the salt marsh by eliminating native vegetation and increasing the likelihood of exotic establishment. Salt marsh bird's-beak most likely owes its precarious population status to this type of disturbance. OHV use is very high on the North Spit of Coos Bay and populations of salt marsh bird's-beak have been impacted from all classes of OHVs driving through the upper salt marsh.

Other potential threats include the placement of dredge materials and introduced plant species, but these are beyond the purview of the current planning effort and will need to be resolved under an intertidal management agreement. No natural biological threats are currently known.

Sea-beach sandwort (*Honkenya peploides*)

This species is a northerly species which reaches the southern extent of its range at Coos Bay. It is currently a BLM Tracking species (ONHP List 3). One documented occurrence is known within the CBS. The habitat for this species is coastal beaches and upper salt marshes. At this time there appear to be no definable species-wide threats, but European beachgrass encroachment and OHV use may be localized threats.

California Beach-aster (*Lessingia filaginifolia* var. *californica* syn. (*Corethrogyne californica* var. *obovata*)

This species is another California species whose northernmost extent occurs at Coos Bay. This species is a BLM

Tracking species. Habitat for California beach-aster on the CBS is partially stabilized dunes. This is one of the few species which appears to tolerate European beachgrass. There are no apparent threats to this species, and the primary reason for its listing in Oregon is its narrow range. This species is known from scattered populations within the CBS.

Western Lily (*Lilium occidentale*)

Western lily was proposed by the U.S. Fish and Wildlife Service as endangered under the Endangered Species Act, and it is currently listed as endangered by the State of Oregon. This species occurs in coastal bogs and forest edges usually in soils with a cemented hardpan. The range of this species is from Coos County Oregon to Humboldt Bay California. Habitat is present for this species in a bog just south of Coos Head. This area has been surveyed numerous times by many people looking for lilies and none have ever been found. Nearby populations occur near Bastendorff Beach and Shore Acres State Park.

Western Marsh-rosemary (*Limonium californicum*)

Western marsh-rosemary is another California species which extends along the southern Oregon coast. This species is a BLM Assessment Species (ONHP List 2). At this time the Coos Bay area has the only known locations of this species in the State of Oregon. The habitat for western marsh-rosemary is the upper coastal salt marshes. One occurrence is known from the CBS and is currently being impacted from OHV use.

Adder's-tongue (*Ophioglossum pusillum*)

Adder's-tongue is currently a BLM Assessment species. This species occurs in coastal deflation plains dominated by slough sedge. Besides these deflation plains, this species occurs in meadows and wet woods. Adder's-tongue is a wide ranging species, but is known from only a few scattered locations. No populations are currently known from the CBS but habitat is present. Populations have been documented in these habitats throughout the Oregon Dunes NRA. This species is very hard to detect in these habitats. Some surveys have occurred for this species within the CBS.

Social and Historical Setting Including Cultural Values

Before the introduction of European beachgrass, the North Spit of the Coos River was highly unstable and subject to major changes during the heavy winds of summer and winter. At least two river channels cut through the spit turning a portion of the area into an island during much of the year. Despite these changes, historical records indicate the area was heavily utilized by a variety of aboriginal inhabitants (Pullen, R. pers. comm.)

Located adjacent to the largest estuary between the Columbia River and San Francisco, the North Spit of the Coos River was an ideal place for a wide variety of food procurement and transportation-related activities of native peoples. Clamming, crabbing, hunting for deer, elk, and waterfowl, and berry gathering were traditional forms of foraging. Between 1820 and 1850, British and American trappers camped up and down the coast. Documented parties camped on the spit in 1826, and again in 1828. In 1851, Euro-American settlement spelled the end of large populations of Native Americans that once lived on the fringes of the bay.

The North Spit served as an important transportation link between Coos Bay and settlements on the Lower Umpqua during the late 1800s. Wagons and stagecoaches traveled down the beach during low tide from Winchester Bay to a point across from Empire. Scows carried the passengers across the bay, weather permitting. The first beach stage was operated in the 1880s. At this time, Fred Jarvis took over the Coos-Umpqua stage route and established what is known as the Jarvis Landing Beach Road on the North Spit.

As the industrial capacity of the young Coos Bay area increased, so did the need to improve the harbor and the bar at the mouth of the bay. In 1880, contracts were awarded to construct a jetty near Barview. By the fall of 1881, the jetty cribs extended 1,384 feet into the bay. In the 1890s, the Corp of Engineers greatly improved the project with construction of the North Jetty. Government Camp, a village of laborers and engineers, sprung up in the adjacent area. In 1892, a U.S. life-saving station was built on the spit to rescue sailors stranded by the bar. Between 12 and 16 families lived at the station during its peak use. Remnants of this site can still be visited. In more recent history, concrete bunkers were erected along the spit in hopes of slowing the anticipated Japanese invasion of the West Coast during World War II. There are no recorded conflicts.

Prehistoric Sites

Although considerable documentation supports the presence of aboriginal sites on the North Spit, only two sites officially have been recorded with the Oregon Museum of Natural History. Site CS-26 was located between Jordan Cove and North Slough. Site CS-27, recorded in 1951, was supposedly located along the inner shoreline on the southern end of the spit, but was never specifically located. A recent intensive survey of this shoreline failed to reveal any evidence of this site.

The Coos Indians unquestionably used the North Spit for various activities. However, this area is very unstable and any evidence of that occupation could have been destroyed either by erosion or by shifts in the river channel, or it could have been covered by aeolian deposition. Continued dumping of dredge spoils along the shoreline has further clouded the issue.

Historic Sites

One of the most significant sites on the CBS is the old railroad tunnel on Coos Head. This tunnel was built through the headland around the turn of the century to aid in construction of the Coos Bay jetties. The footings for the trestle leading along the edge of Coos Bay to the tunnel's entrance are still present. The tunnel is a site worthy of nomination to the National Register of Historic Places.

Most historic sites found on the North Spit are on private lands or lands administered by other agencies. The three possible exceptions are Camp Castaway, the Jarvis Landing Beach Road, and the remains of historic shipwrecks. The exact location of Camp Castaway is not known despite its important historical significance. It is doubtful that any remains of the camp exist. Similarly, all evidence of the beach road across the North Spit near the effluent ponds has been destroyed by dune movements or industrial developments. The hulls of several historic shipwrecks are scattered along both the inner and outer shores of the North Spit. These hulls are potential tools for understanding early techniques of shipbuilding.

CHAPTER FOUR

ENVIRONMENTAL CONSEQUENCES

Introduction

Analysis of all alternatives shows that no effect would occur to air quality, cultural resources, farm lands, floodplains, Native American religious concerns, hazardous and solid wastes, water quality, wild and scenic rivers or wilderness. These no-effect conclusions were reached because either these resources are not present on the CBS, or because none of the alternatives relate to these resources. There would be effects on Areas of Critical Environmental Concern, threatened and endangered species, and wetlands. These effects are either insignificant or are mitigated through related actions that either improve or protect affected resources in other locations on the CBS.

This management plan seeks various ways to resolve the list of issues presented in Chapter One. This chapter evaluates the environmental consequences of the alternatives' proposed management actions by looking at how each issue is treated under the management scenarios presented. The baseline used for these consequences is the affected environment described in Chapter Three. Actual consequences would vary with the implementation schedule. Included in this chapter is a discussion of the cumulative effects of the actions by alternatives. Also identified are reasonably foreseeable shifts in use and conditions of the CBS that may not result directly from management actions.

Analysis of Recreation Impacts

The three management issues confronting recreation are: recreation conflict, impact reduction, and provision of recreation opportunities. The following sections address how the three recreation issues are treated by each alternative.

Issue: Recreation Conflict

A variety of conflicting recreational activities occur on the CBS that reduce social benefits of outdoor recreation to one or more recreational user groups. The most profound conflicts occur between motorized and non-motorized user groups. In general, perceived conflict is greater among non-motorized user groups than among motorized user groups (Ivy and Stewart 1992). This general principle of conflict reduction relates heavily to visitor expectation. If, for example, a visitor expects frequent or continuous contact with motorized vehicles, then their presence is less likely to be interpreted as producing conflict. This knowledge may, however, affect destination choice which can be viewed partially as a conflict avoidance tactic. Principal motorized uses include motorized access for bay shore clamming, crabbing, and jetty fishing; ATV riding; and ocean beach activities. Principal non-motorized uses include wildlife viewing; other forms of nature observation; bay shore clamming and crabbing on areas relatively close to existing pavement; dayhiking; and photography.

A major aspect of expectation is segregation of uses, which can occur as a consequence of facility development and regulation.

How Alternative A Addresses Recreation Conflict

This alternative would substantially reduce conflict but at the expense of overall impact. One reason for the reduction would be changes in visitor expectations as a result of more intensively managed settings. A clearly mapped road system providing access to key recreational resources would ensure that most first time visitors and all repeat visitors would anticipate an experience characterized principally by a roaded natural or rural settings.

Regulatory recommendations under this alternative would ensure a high degree of use segregation.

Listed below are management actions that affect the conflict issue.

Road Construction - Foredune Improvements (MA1-A) - Construction of additional roads would result in more accurate visitor expectations and segregation of users. Expectations would be shaped by informational services that locate and describe visitor opportunities within the principal access corridor created by this action. Segregation of uses would occur as both direct and indirect effects of this action. Direct segregative effects would occur from enhanced conventional access that would unify the visitor pool into more of a single use group. Indirect effects would derive from the relationship of this action to other motorized uses of the CBS. A large component of OHV use on the North Spit is recreational access. Construction of this road would provide that access and eliminate the need for access from off-highway routes.

This road construction would effectively mitigate the loss of access from constraints on OHV use.

An additional consequence of this action would be increased visitation because visitors would no longer require specialized vehicles to access the unique recreational resources on the Coos Bay Shorelands. The increases in visitation would displace a small number of users that frequent the North Spit for its relative solitude.

OHV Status (MA3-A) - Establishing a single, clearly-mapped and signed OHV area would greatly reduce conflict between motorized and non-motorized users. All visitors entering this area would know the dominant use. Closing all other areas to OHV use, except for the bay beach and the ocean beaches from September 15 to March 15, would shape visitor expectations as well as help to segregate uses.

Bay Beach Motorized Access (MA4-A) - The principal geographic centers of conflict between motorized and non-motorized recreationists on the CBS are the ocean and bay beaches. These areas provide the most scenic corridors and the best chances to see a variety of wildlife. These characteristics act as a strong draw for visitors whose primary activities are viewing wildlife and other forms of nature study. These areas also provide ready thoroughfares for motor vehicles, and their appeal for this use is enhanced by scenic and wildlife qualities. Conflict arises when the presence of vehicles adversely affects resource utility for other uses.

On the bay beaches, a high concentration of shorebirds and waterfowl—combined with the presence of special status plant and animal species—make the impacts of motorized vehicles disproportionate to recreational benefits (see impact reduction below). Specifically, because of the outstanding wildlife viewing opportunities available at this site, vehicle disturbance ranks high as a source of conflict for other recreationists. MA4-A would continue to permit motorized uses on the bay beach only marginally constrained by a post and cable fence. The primary effect of this constraint would be to expand salt marsh habitat; no mitigation of recreation conflict would occur.

In contrast, the net consequence of this action would be an increase in conflict level. Other concurrent management actions would increase overall visitation to the area. The area affected by this action is proposed as the premiere wildlife observation destination on the CBS under all alternatives. The presence of motor vehicles would be inconsistent with this management objective.

Ocean Beach Motorized Access (MA5-A) - While driving on Oregon's beaches is a long-standing traditional use, serious conflict with the management of special status species necessitates seasonal closure. A secondary benefit of this action is reduction in recreational conflict. Ocean beaches in particular attract a diversity of users, both motorized and non-motorized. This action would eliminate conflict between these user groups during the dominant recreational use period from March 15 through September 15.

In addition, the ocean beaches on the CBS offer the best opportunities for the establishment of a recreational setting with semi-primitive, non-motorized characteristics. These characteristics are possible because the unique features of the area visually and audibly screen inland activity from the ocean beach. The opportunity to take vehicles on the beach would still be available north of Horsfall Beach in the Oregon Dunes National Recreation Area.

OHV Open Area (MA6-A) - This action would greatly reduce conflict between motorized and non-motorized users by segregating OHV use from most other recreational activities. Alternative transportation proposals would ensure access to key recreational resources that formerly were only accessible by OHV routes.

Day-Use Facilities (MA9-A) - Expansion of day-use facilities at the boat ramp would eliminate conflict between crabbers, anglers and boaters. Crabbing activity on the boat ramp dock was eliminated because of interference with the primary function of the facility. An additional separate crabbing/fishing facility would attract more visitors to the area and produce a better return to the public on the initial investment at that site.

Equestrian Staging (MA12-A) - Providing equestrian staging areas would segregate the loading and unloading of horses, trailer parking, and other equestrian staging needs from other user groups. The consequence of this action would be a reduction in conflict and increased safety for both equestrians and pedestrians. It would also provide a centralized place to post educational material on pedestrian-equestrian trail encounters.

Non-Motorized Trail Designations (MA13-A) - Designating non-motorized trails under this alternative would increase conflict where a proposed OHV open area overlaps with segments of the trail system. Specific trail locations would avoid the OHV area as much as possible within the constraints of impact to wildlife. Nonetheless, directing both user groups to the same general location would counter conflict management objectives. In addition, substantial safety concerns would arise in areas where both user groups converged. Portions of the non-motorized trails away from the OHV area would experience decreased conflict due to segregation of uses.

How Alternative B Addresses Recreation Conflict

This alternative—particularly as a result of limitations on motorized activity—would substantially reduce conflict, improving the recreational resources throughout the CBS. As with Alternative A, changes in visitor expectation as a result of more intensively managed settings would contribute greatly to conflict reduction. A clearly-mapped road system providing access to key recreational resources ensure that most first time visitors and all repeat visitors would be able to choose the recreational setting they desired.

Also, like Alternative A, segregation of uses would be achieved through a variety of infrastructure developments and regulatory guidelines. Segregation of uses would be noticeably more pronounced than under Alternative A as a result of more limited road construction proposals.

Listed below are management actions that affect the conflict issue.

Road Construction - Foredune Improvements (MA1-B) - More accurate visitor expectations and segregation of users would occur under MA1-B as under MA1-A. Direct segregative effects resulting from enhanced conventional access would produce a more uniform visitor pool in areas accessible to conventional motorized visitors. Because the more limited road construction would not provide access to all primary recreation destinations on the CBS, unmet access needs would be fulfilled by designated off-highway routes. This would produce higher levels of conflict in areas adjacent to designated OHV routes, but at the benefit of reduced impact overall (see MA1-B under Impact Reduction below).

Managing for a mix of motorized and non-motorized uses would require effective law enforcement to minimize trespass, its subsequent conflict, and unwanted impacts. This road construction would partially mitigate the loss of access from constraints on OHV use under Alternative B.

Visitation is likely to increase due to improved accessibility to key resources. Visitors would no longer require specialized vehicles to access key representative experiences. Despite the increased visitation, visitors who come to the CBS for solitude are not expected to be displaced. The proposed ACEC portion of the CBS would remain in its current physical state. Regulations that limit the array of uses in this area would favor non-motorized activities and the conservation of ACEC values. The net effect would be an increase in utility for visitors who seek solitude or nature study.

OHV Status (MA3-B) - Eliminating unconstrained OHV use would reduce conflict between motorized and non-motorized users. Users of the proposed non-motorized trails would experience greatly reduced conflict. This action would influence visitor expectations and segregate users.

Bay Beach Access (MA4-B) - Primary benefits of limiting motorized access relate to the management of special status species and impact to wildlife. Reduction in recreation conflict is a secondary benefit.

The principal geographic centers of conflict between motorized and non-motorized recreationists on the CBS are the ocean and bay beaches. These areas provide the most scenic corridors and the best chances to see a variety of wildlife. These characteristics act as a strong draw for visitors whose primary activities are viewing wildlife and other forms of nature study. These areas also provide ready-made thoroughfares for motor vehicles and their appeal for this use is enhanced by scenic and wildlife qualities. In addition, rare salt marsh habitats present are extremely sensitive to mechanical disturbance.

On the bay beaches, a high concentration of shorebirds and waterfowl—combined with the presence of special status plant species—make the impacts of motorized vehicles disproportionate to recreational benefits. Specifically, because of the outstanding wildlife viewing opportunities available at this site, vehicle disturbance ranks high as a source of conflict for other recreationists. Mechanical disturbance of the salt marsh habitat and visual/audio disturbance to wildlife also produces effects that extend beyond the duration of the recreation visit. By not allowing motorized uses on the bay beach, MA4-B would eliminate the source of conflict.

Ocean Beach Access (MA5-B) - Primary benefits of restricting motorized access relate to the management of special status species. Reduction in recreation conflict is a secondary benefit. While driving on Oregon's beaches is a long-standing traditional use, the resource conditions, aesthetics, and ecological understanding of the interrelationships with adjacent habitats have changed over the years. Consistency with upland management is now an important ecosystem consideration for beach areas.

Ocean beaches attract a diversity of users, both motorized and non-motorized. Not allowing motor vehicles on the beach would eliminate the major source of conflict. A year-round closure would have the effect of providing an extensive semi-primitive non-motorized ocean beach setting, which is currently lacking in this area. Despite adjacent motorized uses (see MA3-B), the unique features of ocean beaches make this setting possible because inland activity is visually and audibly screened. The opportunity for motorized use would remain north of Horsfall Beach in the Oregon Dunes National Recreation Area. A year-round closure would reduce law enforcement problems and also the impact to wildlife (including the federally listed western snowy plover) that use the ocean beaches in winter.

Day-Use Facilities (MA9-B) - Expansion of day-use facilities at the boat ramp under Alternative B would produce the same consequences as under Alternative A (MA9-A).

Equestrian Staging (MA12-B) - The consequences of providing an equestrian staging area under Alternative B would be the same as those described for Alternative A (MA12-A).

Non-Motorized Trails (MA13-B) - Non-motorized trails under this alternative would decrease conflict by segregating uses. Trailheads located along the proposed new road would offer a distinctly different recreation opportunity from what is currently available within the motorized access corridor. Trail locations under this alternative would be selected to retain non-motorized setting characteristics as much as possible.

How Alternative C Addresses Recreation Conflict

This alternative would reduce conflict to a greater degree than the other alternatives. The elimination of motorized uses within the proposed ACEC would segregate almost all uses, allowing visitors to accurately predict the recreation setting in which their preferred activity takes place. Besides producing consistency between expectations and outcomes, this action would also deliver a more satisfactory experience to most visitors.

Listed below are management actions that affect the conflict issue.

Road Construction - Foredune Improvements (MA1-C) - The environmental consequences of road construction under Alternative C would be the same as those described for Alternative B (MA1-B).

OHV Status (MA3-C) - Conflict between motorized and non-motorized users would be eliminated under this action because the source of conflict (OHV use) would be removed from all public lands on the CBS.

Bay Beach Access (MA4-C) - Under Alternative C, recreation use patterns on the bay shore would eliminate motorized access to key resources for the vast majority of visitors. Conflict would be eliminated because two different user groups would no longer occupy the same set of resources at the same time.

Ocean Beach Access (MA5-C) - Limiting motorized access to ocean beaches under Alternative C would have the same consequences as those under Alternative B (MA5-B).

Day-Use Facilities (MA9-C) - Expansion of day-use facilities at the boat ramp would produce the same effects as under Alternative A (MA9-A).

Equestrian Staging (MA12-C) - Providing an equestrian staging area under Alternative C would have the same effects as providing an equestrian staging area under Alternative A (MA12-A).

Non-Motorized Trails (MA13-C) - The consequences of constructing non-motorized trails under Alternative C would be the same as under Alternative B (MA13-B).

How the No Action Alternative Addresses Recreation Conflict

The No Action Alternative would not reduce conflict, except where actions taken on behalf of special status species reduce impacts by their nature. Only one action recommended in this document would have such an effect. That action is under Actions Common To All Alternatives (Special Status Species) where recommendations are made to pursue access restrictions and possible closures of beach lands in cooperation with state agencies for the purposes of snowy plover nesting site protection. Beach restrictions are made explicit under MA5-A, B and C. Refer to the analysis of these actions for a description of environmental consequences.

Issue: Impact Reduction

Impact reduction is concerned principally with impact to wildlife as a result of recreational activity. Recreational activities that reduce the presence of wildlife on the CBS have an adverse effect on the overall appeal of the area for a variety of activities. Issue resolution would be achieved by management actions that reduce the adverse effects of visitors on wildlife populations. Management actions would be interpreted in light of cumulative effects. For example, while an action may increase impacts on a portion of the CBS, the action may be part of an overall mitigation when viewed in conjunction with other actions.

How Alternative A Reduces Recreation Impacts

The overall impact of Alternative A would be greater than under No Action as a result of anticipated increases in visitation and facilitated access to the interior of the North Spit, despite mitigative action that would restrict motorized uses in some areas. Other reasons for the high impact levels under this alternative include retention of: motorized uses on the bay beaches, ocean beaches seasonally, and at a proposed 260-acre open sand area (see MA6-A). The overall increase in recreational opportunity that this alternative presents must be weighed against these higher impact levels.

Road Construction - Foredune Improvements (MA1-A) - Providing conventional motorized access to the North Jetty would greatly stimulate visitation on the CBS. A conservative estimate would be a doubling of current total visitation over the next five years. On the southern portion of the CBS within the proposed ACEC, visitation would be anticipated to increase by 1000 percent or more. This visitation would be channeled into a high use corridor as a result of infrastructure improvements. Such channeled use would potentially have severe impacts on local biological resources. Prescribed management actions such as vegetative screening would partially mitigate these impacts, especially to special status species (see evaluation of actions under Special Status Species, as well as MA3, 4, 5, 9, 10, 12 and 13 below) .

Paving roads and increasing visitation is not, in general, favorable to biological resources. However, when viewed as part of a comprehensive transportation plan, this action would provide broad advantages to people and limited benefits to some wildlife. Positive aspects of this action are a channeling of uses away from less resilient areas that harbor unique biological resources. Deflation plain wetland vegetation would receive the greatest benefit due to elimination of motorized uses within them. Deflation plain wildlife, however, would be subjected to increased human disturbance.

Other adverse impacts would result from dramatic increases in visitation as a consequence of improvements, as well as the direct habitat loss in areas covered with pavement or directly effected by increased human presence. The most strongly affected biological resources would be species that nest or forage on the ocean beaches, such as the snowy plover.

Road Construction - Trans-Pacific Parkway Extension (MA2-A) - This pavement extension is the lowest impact method to expand accessibility to the estaurine resources within the proposed ACEC. Through this action, a broader spectrum of the public—those individuals with conventional motor vehicles only—would have motorized access to bay beach resources which are currently accessible only to individuals equipped for off-highway travel or to those willing to walk. Unlike Alternatives B and C, this proposal does not couple elimination of motorized uses on the northern bay beaches to pavement extension. A critical part of the rationale for this action is the net impact reduction to estaurine resources due to the coupling of road construction and road closure. Under Alternative A, this action would likely result in a net increase in impact to sensitive bay beach biological resources. For further analysis, see MA4 and 9-A.

OHV Status (MA3-A) - Eliminating OHV use outside of the proposed 260-acre open area (MA6-A) would greatly reduce impacts from recreational activity. This action would reduce habitat fragmentation and edge effects that a dense network of OHV trails produces. This action would result in approximately an 800-acre increase in lands not directly impacted by motorized vehicles. The remaining 800 acres would be impacted from the proposed road construction, the OHV open area, or other portions of the CBS designated for OHV use (see MA4 and MA5-A).

Developing a principal access corridor in conjunction with OHV restrictions would produce less impact to biological resources than the open status currently in effect because it would provide a fixed location from which vehicles would be prohibited to leave. Geographically, random disturbance of wildlife would be eliminated. Displacement of wildlife as a result of recreational activity would probably be minimal after an initial adjustment period.

Areas receiving the greatest benefits are deflation plain wetlands and forested upland habitat that provides relatively scarce deep cover for a variety of species.

Bay Beach Access (MA4-A) - Retention of a narrow access corridor on the north bay beach would produce the following impacts from recreation activity:

- Approximately 65 percent of potential habitat for salt marsh bird's-beak would be restored with perfect compliance of the access corridor restrictions.
- An equal percentage (approx. 250,000 sq. ft.) of salt marsh habitat would be restored with perfect compliance of the access corridor restrictions.
- Net increases in impact to wildlife would result as a consequence of overall increases in visitation and improved access to the bay beach via the proposed road extension (MA2-A).

Improved access to the bay beach would increase vehicular traffic on the intertidal area. The proposed road extension would facilitate conventional access across what is now the most challenging soft sand terrain. Currently, the occasional conventional vehicle utilizes this access corridor. With improvements over the most threatening terrain, a greater proportion of poorly equipped visitors would attempt to access the bay beach. The conjunction of retaining vehicle use, improving access, adding a day-use area and marketing for visitation would substantially increase impacts to wildlife.

Ocean Beach Access (MA5-A) - Limiting motorized access from March 15 through September 15 would reduce direct impacts on wildlife utilizing the ocean beaches during those months. In conjunction with MA1-A, however, a substantial increase in impact would be expected from motorized vehicles throughout the remainder of the year. Also, human presence on the ocean beaches would experience an overall increase due to better access provided under MA1-A. Strict access control and monitoring would have to be enforced to ensure that multiple access points did not develop during the winter. Vehicle restrictions between Horsfall Beach (ODNRA) and the northern boundary of the CBS in Section 6 may produce extra pressure on the ocean beach resource as a result of displacement from the ODNRA.

A major component of this action is consistency between beach and upland management. This action seasonally conforms to that objective.

Campground Construction (MA7-A) - Constructing a campground would increase impacts to biological resources locally. Despite full sanitation and waste facilities, campgrounds universally attract a host of scavenger species and frequently develop an ecology of habituated wildlife. While some impact benefits would be realized as a result of concentration of uses, this location in close proximity to the productive south spoils snowy plover area must be weighed against habitat degradation, expansion of non-native species, and increased human presence.

Day-Use Facilities (MA9-A) - Three areas—portions of Section 7, Section 18, and the boat ramp—would have improved day-use facilities. The consequences of improvements in Section 18 south of Anadromous, contingent on acquisition or easement, would be a minor loss of songbird habitat in areas directly affected by construction, a substantial increase in visitation to the site, and large increases in traffic flow down the bay beach. The loss of songbird habitat would be minimal with good site design. In addition, the overall supply of this habitat type, while low on the CBS, is good elsewhere nearby. This site is currently subjected to regular disturbance by off-road vehicles, but its frequency would increase under Alternative A.

The greatest effect of this action would likely be in the duration of disturbance. Substantial improvements to the site would attract and retain visitors for typically one to three hours at a time. When combined with higher numbers of visitors, this action could displace some songbird species to other portions of the CBS or possibly beyond. Recreational use patterns, however, are such that levels of visitation intense enough to cause displacement would probably be infrequent and limited to peak weekends in the summer. Also, enforcement of day-use hours would reduce the level of impact.

In Section 7, the effects of day-use improvements would be negligible. The habitat type found in the general location of the proposed action is abundant throughout the CBS and the ODNRA to the north. Sustained occupation would be infrequent due to the exposed nature of the site.

Day-use improvements at the boat ramp would not have additional impacts on wildlife resources, because the area is already highly impacted. The addition of new facilities would have minimal change to overall site impact.

Sanitation (MA10-A) - Providing sanitation facilities throughout the CBS is a major impact mitigation measure for increased visitation under this alternative. One of the current management concerns is the proliferation of uncontained human waste which attracts scavengers, poses a human health concern, and is unaesthetic.

Equestrian Staging (MA12-A) - Constructing a formal equestrian staging would concentrate impact from this activity in established areas. These improvements, however, would also invite increased visitation for this activity. Currently, equestrian use is not considered a major impact problem. Equestrian use would be limited to designated trails and the ocean and bay beaches.

Non-Motorized Trails (MA13-A) - Provision of a set of non-motorized trails would disperse some use through the CBS. While this would contribute greatly to the array of opportunities available to visitors, trails that become popular may displace some wildlife. Mitigation for this impact would involve careful siting of the trails away from the most sensitive wildlife habitats. In conjunction with the equestrian facilities, trails would determine where the impact from this use would occur.

Watchable Wildlife (MA15-A) - This action would reduce the impact from wildlife viewers by providing educational and interpretive material on low-impact wildlife viewing techniques, and by providing discrete and concentrated locations to view wildlife. While some visitors seek routes independently, providing a designated site encourages concentration of use and proper viewing behavior. The Section 19 site has particularly good characteristics for wildlife viewing (Hammit et al. 1993).

Barrier-Free Interpretive Loop (MA16-A) - The provision of a barrier-free interpretive loop within the non-motorized trail system and adjacent to the proposed road would produce a net reduction in impacts to biological resources. Siting the trail to avoid any sensitive biological resources and providing educational and interpretive material at this site would make visitors aware of the area's biology and their role in minimizing impacts. Knowledge gained at this facility would make visitors more responsive to regulatory guidelines with a conservation emphasis.

Road Rehabilitation (MA17-A) - The rehabilitation of selected roads and trails created by prior unconstrained OHV use would restore sensitive areas impacted by recreational use. Rehabilitation would reduce habitat fragmentation and disturbance from dispersed recreation.

Coos Head Day-Use Areas (MA20-A) - Providing day-use facilities at Coos Head would have limited or no impact on biological resources as the area is currently subjected to frequent disturbance from motor vehicles. Establishment of day-use facilities would likely increase use of this area, but the only biological concerns are cliff-dwelling avian species that may roost on the rock below the proposed overlooks. Inspection of this area has not identified any species of concern.

How Alternative B Reduces Recreation Impacts

The overall impact from recreation on the CBS would decline if Alternative B were implemented. This reduction would result from implementing actions to improve wetlands and to protect threatened and special status species and other ACEC values. This alternative provides the second highest degree of protection of ACEC values, after Alternative C.

Despite projected increases in visitation under Alternative B, facility design and regulation would combine to effectively reduce impact by balancing recreation opportunities with resource protection actions and restrictions on the most disturbing forms of recreational activity. High use would be concentrated and largely contained in areas capable of withstanding those activity levels. Elsewhere on the CBS, sensitive habitats would receive substantially increased protection as a consequence of actions taken to reduce or eliminate impacts from recreation. Another action of Alternative B limiting its impact is that all major facility developments, with the exception of MA2-B (Trans-Pacific Parkway Extension), would occur outside the proposed ACEC.

Road Construction - Foredune Improvements (MA1-B) - Provision of conventional motorized access to ocean beaches would stimulate visitation on the CBS. A conservative estimate under this alternative would be a 50 percent increase over the next five years. Visitation within the proposed ACEC would increase slightly as a result of increased exposure of the area as a recreation destination. The use of specialized OHVs would still be necessary for motorized access to the proposed ACEC except at the proposed day-use site in Section 18 (MA9-B).

One reason for the relatively small increase in visitation (compared to MA1-A) is that, like Alternatives C and the No Action, the absence of developed overnight facilities under Alternative B makes the site less attractive to the roughly 15 percent of tourists on the Oregon coast who camp (Runyan 1989). In addition, the absence of conventional access to the North Jetty removes a significant destination point and decreases the attractiveness of the area. A growth rate of 50 percent, however, can make an important contribution to establishing the Bay Area as a recreation destination for the thousands of tourists who visit the Oregon coast each year.

This alternative would be more successful at resolving the recreation impact issue than Alternative A because overall visitation increases would be less and also be confined to a smaller area. In addition, concurrent actions (such as MA3, 4, 5 and 6-B) would substantially reduce recreation activities that have more severe impacts. Special management actions would be taken to mitigate impacts that might occur as a consequence of increased visitation (See MA3, 4, 5, 9, 10, 12, 13 and 17-B). Effects from these actions are evaluated separately below.

No additional effects are expected to special status species as a result of this action (see evaluation of actions under Special Status Species).

Deflation plain resources would benefit greatly due to elimination of motorized uses within them. Animals that nest or forage on the ocean beaches would likewise benefit. Under this alternative, the addition of new pavement—coupled with other management actions restricting motorized uses—would result in a net decrease in impact to biological resources across a full spectrum of species and habitat types while retaining recreational access to key resources.

Road Construction - Trans-Pacific Parkway Extension (MA2-B) - This pavement extension is the lowest impact method to expand accessibility to the estaurine resources within the proposed ACEC. A central part of this proposal's rationale is its link with actions to eliminate motorized uses on the northern bay beaches (MA4-B). This action is part of a series of proposals that would result in increased visitor access to, and elimination of vehicle impact from, sensitive bay beach biological resources (see MA4 and 9-A for additional analysis).

OHV Status (MA3-B) - Elimination of OHV use (except on designated access roads and trails) would greatly reduce impacts from recreational activity throughout the CBS. Substantial reductions in habitat fragmentation and edge effects from the dense network of OHV trails would be expected. Currently, the entire CBS is directly or indirectly impacted from this activity. This action would result in roughly 800 acres of lands no longer affected by motorized vehicles. The remaining 800 acres would remain impacted from the motorized trail designation, although at a level far below what MA1-A would produce.

The well-defined access corridors would provide fixed locations from which vehicles would be prohibited to leave. This would produce less impact in terms of vehicular disturbance to biological resources than under the current open status.

Limiting OHV use areas would greatly reduce the continual and random disturbance of wildlife now occurring throughout the North Spit. Although displacement levels within the designated access corridors would remain at about present day levels, the selected locations consist largely of pure stands of European beachgrass so are generally poor wildlife habitat for most species of concern.

Bay Beach Access (MA4-B) - Eliminating an access corridor on the north bay beach would reduce impact by:

- Increasing habitat for salt marsh bird's-beak by more than 100 percent (72,000 sq.ft.).
- Increasing salt marsh habitat by more than 100 percent (approx. 390,000 sq. ft.).
- Substantially reducing wildlife impacts, despite improved access to the bay beach for most potential visitors via the proposed road extension (MA2-B).

Improving access to the bay beach would increase access to the unique estaurine resources of the north bay beaches, but would reduce overall impact at the same time. The proposed road extension would facilitate conventional motorized access across what is now the most challenging soft sand terrain to traverse by non-motorized means. This action would, however, restrict use beyond the southern boundary of Section 18 to non-motorized access. While the area immediately adjacent to the day-use area would likely experience increases in frequency of visitation, the intensity would be far lower because of its non-motorized nature.

Further south the frequency of visitation would be expected to decline markedly. When coupled with restrictions on motorized vehicles, the reduced visitation would produce pronounced benefits in the form of reduced impact to the most sensitive resources on the bay beaches. Total traffic volume within the proposed ACEC would likely remain the same, but displacement would occur from the sensitive estaurine beaches to the more resilient foredune.

Ocean Beach Access (MA5-B) - Limiting motorized access would greatly reduce impact to wildlife utilizing the ocean beaches. In the past, motorized uses of the ocean beaches on the CBS have directly and indirectly affected special status and other species. The net effect of this action—when taken in conjunction with ODNRA's recommendation for beach closure between Horsfall beach and the northern boundary of Section 6—would be restriction of all motorized uses from Horsfall south to the North Jetty. This interagency consistency is important to the emerging emphasis on ecosystem management. A core principle of ecosystem management is consistency across ecological gradients, such as the ecotone between the foredune and ocean beach.

A second major component of this action is consistency with upland management. Restrictions on OHV use throughout the CBS are proposed to reduce widespread impacts. This action conforms to that objective. By complementing ODNRA's management strategies, both agencies should be more successful in achieving resource objectives.

Day-Use Facilities (MA9-B) - The consequences of improving three areas (Section 7, Section 18, and the boat ramp) would be the same as under Alternative A, except that the cumulative impacts of improvements in Section 18 would be greatly reduced. See MA4-B for details.

Sanitation (MA10-B) - Providing sanitation facilities throughout the CBS under Alternative B would have the same effect on recreation as under Alternative A (MA10-A).

Equestrian Staging (MA12-B) - Constructing a formal equestrian staging area would affect recreation under Alternative B as under Alternative A (MA12-A).

Non-Motorized Trails (MA13-B) - Providing a set of non-motorized trails under Alternative B would have similar recreation impact as for Alternative A. The more restrictive OHV policy of Alternative B would, however, increase the appeal of the trails which would result in higher use levels. Also, limiting the means of touring the interior of the North Spit to non-motorized methods may create an additional incentive for use of these trails.

Watchable Wildlife (MA14-B) - Consequences of this action under Alternative B would be the same as those under Alternative A (MA14-A).

Barrier-Free Interpretive Loop (MA16-B) - The recreational effects of this action under Alternative B would be similar to those under Alternative A. The impact exception would be an increase in overall site appeal as a result of the OHV restrictions that accompany this action (MA4-B).

Road Rehabilitation (MA17-A) - Rehabilitation of selected roads and trails created by prior unconstrained OHV use would restore sensitive areas impacted by recreational use. Rehabilitation would reduce habitat fragmentation and disturbance from dispersed recreation.

Coos Head (MA20-B) - Establishing day-use facilities (including sanitation, picnic areas, and interpretation) under Alternative B would be the same as under Alternative A (MA20-A).

How Alternative C Reduces Recreation Impacts

Overall impact from recreation on the CBS would drop sharply if Alternative C were implemented. Despite little projected change in visitation, facility design and regulation would combine to effectively eliminate most recreational impact outside of development corridors. Concurrent with this would be a substantial diminishment of recreational opportunities. High use would be concentrated and largely contained in areas capable of withstanding those activity levels.

Elsewhere on the CBS, sensitive habitats would receive a high level of protection as a consequence of actions taken to reduce or eliminate impacts from some or all recreation activities. The most notable of these actions are restrictions on all forms of OHV travel. This alternative provides the highest degree of protection for ACEC values. Another impact limiting action of Alternative C is that all major facility development, with the exception of MA2-C (Trans-Pacific Parkway Extension), would occur outside the proposed ACEC.

Road Construction (MA1-C) - Provision of conventional motorized access to ocean beaches would stimulate visitation on the CBS. A conservative estimate would be a 50 percent increase over the next five years. Effects of this action would be similar to the effects of MA1-B, except as follows:

- Motorized use would not exist (MA3-C) on the southern portion of the CBS within the proposed ACEC.
- Alternative C would resolve the recreational impact issue more successfully than Alternatives A and B because its overall visitation increases would be less and also be confined to a smaller area.
- The overall appeal of visiting the CBS, while enhanced for some users under Alternative C, would be greatly reduced for many long-time visitors (e.g. predominantly local visitors who have used the area for specific recreation for many years). There would be a loss in potential visitors, too, due to reduced appeal. A conservative estimate would be a 90 percent reduction in visitation for those lands contained within the proposed ACEC. More than a 90 percent reduction in impact would occur as a result of shifts in the type of recreation that occur.

Road Construction - Trans-Pacific Parkway Extension (MA2-C) - This pavement extension would have the same consequences as under Alternative B, except for a cumulative effect resulting from OHV restrictions elsewhere on the North Spit. Under this alternative, closure of the entire ACEC to OHV traffic would enhance protection of the estaurine resources that this action effects. Under both this alternative and Alternative B, non-motorized visitation would radiate from the northern boundary of Section 18 in the vicinity of the proposed improvements. Unlike Alternative B, non-motorized visitation under Alternative C would not radiate north from the vicinity of the old U.S. Life Saving station.

OHV Status (MA3-C) - Elimination of OHV use would greatly reduce impacts from recreational activity throughout the CBS. Habitat fragmentation and edge effects would be eliminated from the dense network of OHV trails. Wildlife would not be continually and randomly disturbed by OHV use as is presently the case for the entire North Spit by some form of motorized recreation. This action would result in roughly 90 percent (1,500 acres) of lands not impacted by motorized vehicles. The remaining 150 acres would remain impacted from MA1-C (Road Construction - Foredune Improvements). The level of impact, however, would be far below either MA1-A or B—especially when viewed in light of cumulative effects.

Bay Beach Access (MA4-C) - Elimination of an access corridor on the bay beach would produce the following impacts from recreation activity:

- Restore 72,000 square feet of currently-impacted potential habitat for salt marsh bird's-beak.
- Restore approximately 390,000 square feet of salt marsh habitat.
- Substantially reduce impact to wildlife, despite improved access to the bay beach for most potential visitors via the proposed road extension (MA2-A).

Improved access to the bay beach would increase use of the unique estaurine resources of the north bay beaches by conventionally motorized visitors and other non-motorized users. Also, elimination of motorized uses on the southern bay beach would remove the dominant disturbance factor to wildlife. Motorized traffic volume within the proposed ACEC would fall to zero except for periodic jetty maintenance. Some current motorized users of this area would be displaced to other less desirable locations around the bay.

Ocean Beach Access (MA5-C) - Limiting motorized access would produce the same effects as under Alternative B, but with the additional benefit to wildlife that there would be no human use from motorized locations on the foredune road.

Day-Use Facilities (MA9-C) - The consequences of improving three areas (Section 7, Section 18, and the boat ramp) would be the same as under Alternative A, except with adjustments for cumulative effects discussed under MA1, 2, 3, 4 and 5-C.

Sanitation (MA10 -C) - Providing sanitation facilities throughout the CBS would have the same effect on recreation as under Alternative A (MA10-A).

Equestrian Staging (MA12-C) - Constructing a formal equestrian staging area under Alternative C would have the same effects as under Alternative A (MA12-A).

Non-Motorized Trails (MA13-C) - Provision of a set of non-motorized trails would have similar recreational effects as under Alternative A. The exception would be that trails under Alternative C—in conjunction with the ocean and bay beaches—would form the principal access corridors for visitors to the proposed ACEC. Use of these trails is projected to be slightly higher because the type of visitor attracted to the CBS under this alternative is more likely to take advantage of non-motorized access opportunities.

Watchable Wildlife (MA15-C) - Implementing watchable wildlife actions under Alternative C would have the same effects as under Alternative A (MA15-A).

Barrier-Free Interpretive Trail (MA16-C) - This action would produce the same recreational effects under Alternative C as under Alternative A (MA16-A).

Coos Head Day-Use Area (MA20-C) - The recreational effects of providing sanitation, picnicking, and interpretation at Coos Head under Alternative C would be the same as those under Alternative A (MA20-A).

How the No Action Alternative Reduces Recreation Impacts

The only impact reduction under the No Action Alternative would be where actions taken on behalf of special status species reduce impacts by their nature. Only one action recommended in this document would have such an effect. That action is under Actions Common To All Alternatives (Special Status Species) where recommendations are made to pursue access restrictions and possible closures of beach lands in cooperation with state agencies for the purposes of snowy plover nesting site protection. The effects of these actions are made explicit under MA5-A, B, C. Refer to the analysis of these actions for a description of environmental consequences under this alternative.

Issue: Recreation Opportunities

Two categories of recreation opportunities have been identified: (1) recreation opportunities produced from shifts in the recreation opportunity spectrum (ROS) that would occur as a consequence of management actions designed to reduce conflict, and impact, and (2) infrastructure improvements proposed to improve the level of service to the public. All alternatives except the No Action, would have dramatic changes in both the ROS settings and the level of service provided. Changes in ROS setting profoundly affect the social and physical characteristics of the CBS.

Recreation Opportunities From Shifts in ROS Settings

The Recreation Opportunity Spectrum provides a framework for stratifying and defining classes of outdoor recreation opportunities. As conceived, the spectrum has application to all lands regardless of ownership or jurisdiction. Its application on the CBS helps in determining and implementing recreation management objectives. Table 4-1 describes the four ROS settings on the Coos Bay Shorelands.

Recreation opportunities from shifts in ROS settings would occur as consequences of action taken to manage motorized uses on the CBS. The proximity of the CBS to an urban setting precludes using management of motorized uses alone as a sole determinant of recreation opportunity. Table 4-2 shows how the acreage in setting characteristics differs among the four alternatives for the entire area, including public domain and other lands.

The ROS setting of Coos Head would not be affected by any action proposed under any alternative.

Because the unique geographical features of the CBS peninsular has distinct topographical and auditory separations, the usual criteria required for an ROS setting is of limited utility. The settings identified under the various alternatives should be understood as areas that have the characteristics of a given ROS settings, but do not necessarily meet strict setting requirements. Typically, they are too small to supply the type of experience associated with classic ROS settings. The characterizations provided on Table 4-1 are nonetheless useful analysis tools.

Recreational Opportunities from ROS Shifts Under Alternative A

ROS objectives of Alternative A would produce a largely RN setting with seasonal restrictions on the ocean beach. These rural natural settings would eliminate conflicts and impacts associated with a SPM setting. Map 4-1 shows the consequences of this alternative for recreation settings.

Actions under this alternative would produce conventional motorized access to approximately 800 acres of public lands and 5 miles of ocean beach for the estimated 125,000 visitor use days the CBS receives annually. (Less than one percent of the 1,600 acres of public land within the planning boundary is currently accessible to conventional motor access.) Although this alternative would emphasize non-motorized uses outside of the access corridor (MA1-A), visitors would not have the benefit of a non-motorized setting. In addition to the 260-acre core OHV area proposed for Section 18, paving the foredune road would expose visitors to the sights and sounds of motor vehicles throughout a majority of the CBS at a high frequency rate. Direct conflict (stemming from motorized and non-motorized users enjoying the same resource concurrently) would, however, be greatly reduced or eliminated.

The recreation setting objective for the ocean beach under Alternative A is to create a non-motorized opportunity during peak use periods in the summer. Road and facility designs that place all enhancements east of the foredune would contribute to meeting this objective. The physical characteristics of the ocean beaches visually and audibly screen the area from off-beach human activity, which contributes to a feeling of remoteness. Because of the extensive reaches of undeveloped beach in this area, as well as other unique qualities, the ocean beaches uniquely contribute a sense of vastness unavailable on adjacent lands.

Recreation Opportunities from ROS Shifts Under Alternative B

ROS objectives under Alternative B (the Proposed Action) are to produce a mix of settings to increase the diversity of recreation opportunities available on the CBS. Motorized restrictions on the ocean beach would eliminate conflicts and impacts associated with a SPM setting and supply local demand for non-motorized beaches. Much of the core remnant open sand area in and around Section 18 would be converted to SPNM. Map 4-2 shows the consequences of this alternative for recreation settings.

Significant demand exists in SCORP Region 6 for non-motorized opportunities as explained in Chapter Three. This alternative would place an emphasis on non-motorized uses through most of the interior of the North Spit. The foredune road would remain open to OHV use and portions of the interior spit would remain exposed to the sights and sounds of motor vehicles. However, visitors would have the benefit of formally-established non-motorized settings in some areas where topography or other factors visually and audibly screens vehicles. Direct conflict between motorized and non-motorized users would be greatly reduced or eliminated. Other actions under Alternative B would produce conventional

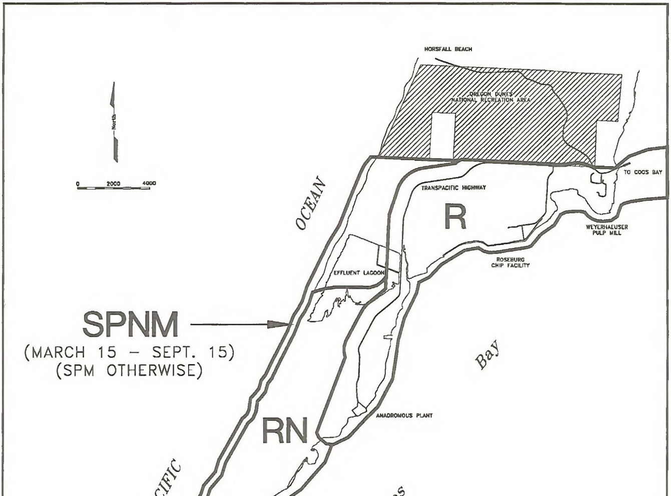
Table 4-1. ROS Settings on the Coos Bay Shorelands

Semi-Primitive Non-Motorized (SPNM)	Semi-Primitive Motorized (SPM)	Roaded Natural (RN)	Rural (R)
Area is characterized by a predominantly natural-appearing environment. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is not permitted.	Area is characterized by a predominantly natural or natural-appearing environment. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls may be present, but are subtle.	Area is characterized by predominantly natural appearing environments with moderate evidences of the sites and sounds of humans. Such evidences usually harmonize with the natural environment. Interaction between users may be low to moderate, but with evidence of other users prevalent. Resource modification and utilization practices are evident but harmonize with the natural environments. Conventional motorized use is provided for construction standards and design of facilities.	Area is characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of peoples. Facilities are often provided for special activities. Moderate densities are provided far away from developed sites. Facilities for intensified motorized use and parking are available.

Table 4-2. ROS Settings by Alternative (in acres)

	SPNM	SPM	RN	R
Alternative A	675	0	1,627	1,445
Alternative B	905	980	415	1,445
Alternative C	1,965	0	335	1,445
No Action Alternative	0	2,300	0	1,445

Abbreviations used in this table:
SPNM = Semi-Primitive Non-Motorized
SPM = Semi-Primitive Motorized
RN = Roaded Natural
R = Rural



Legend

—	EXISTING PAVED ROAD
▬	ROS BOUNDARIES
▨	U.S. FOREST SERVICE ADMINISTERED LANDS

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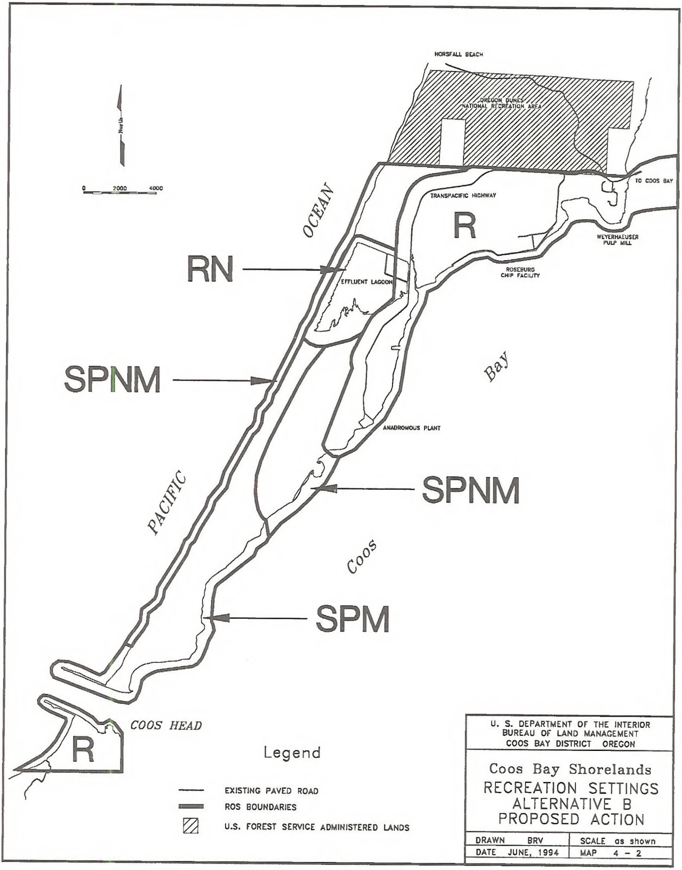
COOS BAY DISTRICT OREGON

Coos Bay Shorelands
RECREATION SETTINGS
ALTERNATIVE A

DRAWN BRV	SCALE as shown
DATE JUNE, 1994	MAP 4 – 1



Legend

— EXISTING PAVED ROAD
▬ ROS BOUNDARIES
▨ U.S. FOREST SERVICE ADMINISTERED LANDS

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COOS BAY DISTRICT OREGON

Coos Bay Shorelands
RECREATION SETTINGS
ALTERNATIVE B
PROPOSED ACTION

DRAWN BRV	SCALE as shown
DATE JUNE, 1994	MAP 4 - 2

motorized access to approximately 300 acres of public lands and 0.5 mile of ocean beach for the estimated 125,000 visitor use days the CBS receives annually.

Under Alternative B, the recreation setting objective for the ocean beach is to create a non-motorized opportunity on a year-round basis. The physical characteristics of the ocean beaches visually and audibly screen the area from off-beach human activity. This contributes to a feeling of remoteness. Because of the extensive reaches of undeveloped beach in this area, as well as other unique qualities, the ocean beaches contribute a sense of vastness unavailable on adjacent lands.

Also, establishment of an SPNM setting on the northern bay beaches would create enhanced wildlife viewing opportunities.

Recreation Opportunities From ROS Shifts Under Alternative C

ROS objectives under Alternative C are to produce a dominant SPNM setting. Motorized restrictions on the ocean beach, as well as within the proposed ACEC, would achieve this objective and supply local demand for non-motorized beaches. Map 4-3 shows the consequences of this alternative for recreation settings.

Significant demand exists in SCORP Region 6 for non-motorized opportunities as explained in Chapter Three. Alternative C would place an emphasis on non-motorized uses through the interior of the North Spit at the expense of the area's recreational potential. Access corridors to key recreational destinations within the CBS would be closed to traditional access methods. Conflict between motorized and non-motorized users would be eliminated. Other actions under Alternative C would produce conventional motorized access to approximately 300 acres of public lands and 0.5-mile of ocean beach for the estimated 125,000 visitor use days the CBS receives annually (less than one percent of the 1,600 acres of public land within the planning boundary is currently accessible to conventional motor access).

Under Alternative C, the recreation setting objective for the ocean beach is to create a non-motorized opportunity on a year-round basis. Because there would be no adjacent motorized uses, unlike in Alternative A and B, this objective would be achieved with certainty. This is the only alternative that produces an SPNM setting within the CBS that does not rely on topographical or auditory separation.

Like Alternative B, establishment of an SPNM setting on the northern bay beaches under Alternative C would create enhanced wildlife viewing opportunities.

Recreation Opportunities from ROS Shifts Under the No Action Alternative

The ROS settings under the No Action Alternative would remain SPM throughout the majority of the North Spit, and RN for Coos Head. The ocean beaches would have characteristics of SPNM seasonally as a result of closures designed to protect nesting snowy plovers. No changes in ROS settings or recreation opportunities would occur except seasonally on the ocean beaches (see Map 4-4).

Recreation Opportunities From Infrastructure Improvements

The principal environmental consequences of infrastructure-based recreation opportunities would be an increase in service level and subsequent appeal and visitation for the majority of potential visitors to the area. Other than proposals for road construction and campgrounds, new infrastructure-based opportunities are common to Alternatives A, B and C.

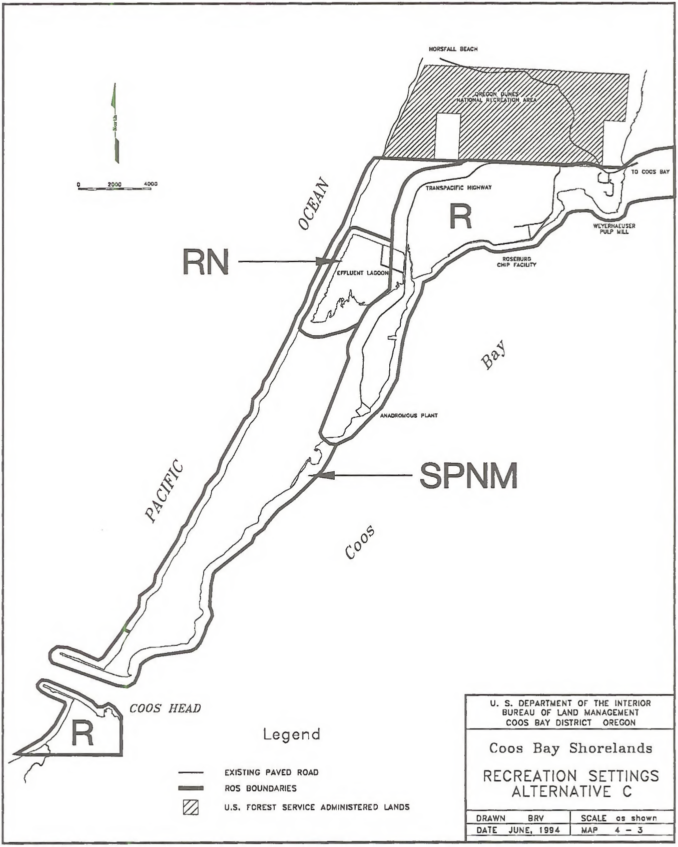
Road and Campground Construction

Recreation Construction Under Alternative A

Significant recreation opportunities would be present under Alternative A. Conventional motorized access to the north jetty would be the most important addition, and the scenic drive along the foredune would be second. Another opportunity made possible by this proposal is the construction of a campground in Section 25. The consequences of these nested opportunities are detailed in the Recreation Conflict and Impact sections above. One of the more pronounced single benefits is the addition of a barrier-free crabbing/fishing facility at the boat ramp.

Recreation Construction Under Alternative B

Significant recreation opportunities would also be available under Alternative B, but in lower quantities than under Alternative A. Conventional motorized access to the foredune and ocean beaches would be the most significant effect. A short scenic drive along the foredune would be available to conventional motorized vehicles; no campground is nested into this proposal.



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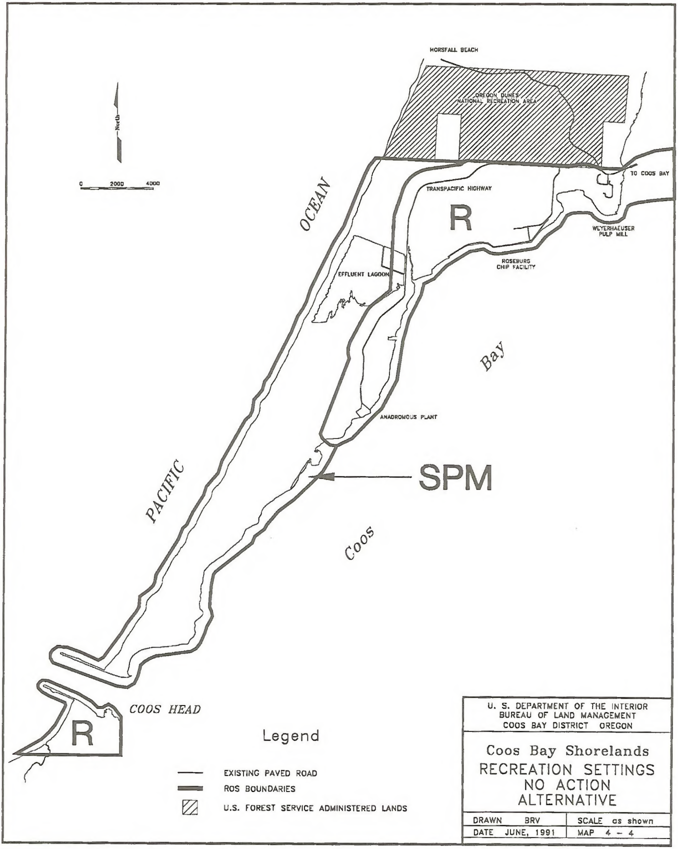
Coos Bay Shorelands

RECREATION SETTINGS
ALTERNATIVE C

DRAWN BRV	SCALE as shown
DATE JUNE, 1994	MAP 4 – 3


HORSFALL BEACH
OREGON DUNES NATIONAL RECREATION AREA
North
0 2000 4000
OCEAN
TO COOS BAY
TRANSPACIFIC HIGHWAY
R
WEYERHAEUSER PULP MILL
ROSEBURG CHIP FACILITY
EFFLUENT LAGOON
Bay
ANADROMOUS PLANT
SPM
PACIFIC
Coos
COOS HEAD
R
Legend
EXISTING PAVED ROAD
ROS BOUNDARIES
U.S. FOREST SERVICE ADMINISTERED LANDS
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BUREAU OF LAND MANAGEMENT
COOS BAY DISTRICT OREGON
Coos Bay Shorelands
RECREATION SETTINGS
NO ACTION
ALTERNATIVE
DRAWN BRV
SCALE as shown
DATE JUNE, 1991
MAP 4 - 4

Service levels would increase the same as under Alternative A with the exception of overnight facilities. The consequences of this action are detailed in the Recreation Conflict and Impact sections above.

Recreation Construction Under Alternative C

Recreation opportunities from infrastructure development planned under Alternative C would be the same as Alternative B.

Recreation Construction Under No Action Alternative

No additional road or campground construction would occur under the No Action Alternative.

Other Infrastructure-Based Recreation Opportunities

- Equestrian staging area proposals for Section 7 would create a centralized location for this activity, and add convenience and safety while reducing conflict and impact. For Alternative A, add an additional equestrian staging area in Section 25 adjacent to the proposed campground.
- Proposals for establishment of 12 miles of trail would provide opportunities for solitude in a majority non-motorized setting. Although compromised under Alternative A, the non-motorized setting would still offer recreation opportunities in the form of hiking without direct conflict with motor vehicles on most of the trail.
- Formal wildlife viewing and interpretive proposals on the dredge lobe in Section 19 and at the boat ramp would create educational opportunities and increase viewing satisfaction. Producing and distributing a shorebird viewing guide would direct people to these areas.
- Construction of a barrier-free interpretive trail in Section 7 and an estuary viewing platform adjacent to the boat ramp facility would provide a representative experience for the mobility impaired that does not currently exist.
- Improvements at the boat ramp would provide barrier-free land based crabbing and fishing opportunities which are currently in short supply around Coos Bay and absent from the CBS.
- Construction of day-use facilities on Coos Head—including picnic tables, rest facilities and scenic viewpoints—would create a scenic and inviting day-use area where none currently exists.
- Overall improvement in visitor services would be provided by cumulative infrastructure improvements including sanitation facilities, increases in visitor information services, and on-the-ground presence provided through increased staffing in law enforcement and interpretation.

No recreation opportunities are identified with management actions taken to improve service levels under the No Action Alternative.

Lost Recreation Opportunities - General

OHV Use - Under all alternatives including the No Action, OHV opportunities would be limited in a variety of ways. Actions range from voluntary seasonal closures under No Action, to elimination of OHV riding opportunities under Alternative C. All alternatives except No Action would result in a loss of approximately 3 percent of the regional OHV riding opportunities in the setting and habitat type that occurs within the CBS. This estimate is based on acres of riding opportunity with total potential acres of similar riding opportunities. The supply of similar riding opportunities outside the CBS occurs within the ODNRA. Total riding opportunities were estimated from the combined acreages of the ODNRA and the CBS. Where some OHV riding opportunities are retained, the acreages represented are negligible in terms of regional supply.

Lost Recreation Opportunities Under Alternative A

This alternative would eliminate all OHV use except in the 260-acre open sand area retained in Section 18 (MA6-A), the bay beaches (MA4-A), and the ocean beach seasonally (MA5-A). Exploratory OHV use on the interior of the North Spit would be prohibited under MA3-A.

Lost Recreation Opportunities Under Alternative B

This alternative would eliminate OHV uses throughout the CBS except on the southern bay beaches (MA4-B), and in Section 25 along the foredune road and short spur (MA3-B).

Lost Recreation Opportunities Under Alternative C

This alternative would eliminate all OHV uses within the CBS.

Lost Recreation Opportunities Under No Action Alternative

Under No Action, OHV uses would not be lost. Voluntary restrictions on ocean beaches and other areas utilized by the snowy plover would be the interim management strategy. Monitoring to determine the effects of OHV use on this species and other special status species would provide the basis for future revision of this policy.

Losses Related to OHV Restrictions

On the CBS, off-highway vehicle travel is the principal means of access to a variety of recreational opportunities, including clamming, crabbing and fishing. Under all alternatives, these related activities would remain available. Access to these opportunities by traditional means would be retained under Alternatives A and B. Under Alternative C, however, there would be a loss of this access. No effect to the access of these opportunities would occur under No Action.

Analysis of Wildlife Impacts

The analysis of effects on wildlife and their habitat is organized into three major sections—Management of Recreational Activities and Access, Wildlife Habitat Management, and Management of Special Status Species. These management issues and opportunities were identified in Chapter Two. Detailed analysis is limited to resources that would be substantially affected by the alternatives proposed in the management plan.

Issue: Management of Recreational Activities and Access

Overview

Recreational activities on the CBS include off-highway vehicle travel and activities dependent on OHV travel, such as jetty fishing, clamming, and camping. Hiking and horseback riding are also common activities. These various activities contribute to the creation of trails, but off-road vehicles produce the most impacts per user day by being louder and traveling greater distances. Potential adverse impacts include damage to vegetation and soils, increased invasion of non-native species, habitat fragmentation, and wildlife disturbance and mortality.

Of these impacts, damage to vegetation and soils is the most apparent. Vehicles crush or tear out vegetation and disturb soils. Repeated travel over an area destroys the vegetation, creating open and visible sand trails within all the habitat types on the CBS. The exposed soils are vulnerable to drying, erosion, and compaction which create corridors that attract additional users.

Wetland habitats that dominate the deflation plain and are interspersed with the open sand throughout the central dunes are the most sensitive to this type of disturbance. Many of the wetland plant species are easily destroyed by only minimal vehicle travel. When the vegetative cover is removed from a wetland, the standing water is exposed to an increased level of solar radiation which affects the water temperature, productivity and evaporation rate of the entire wetland.

Vegetation loss in the area covered by these trails directly reduces the amount of suitable habitat available to wildlife, but these trails also alter habitat in other ways. The regular passage of vehicles has the potential of spreading non-native plant species such as European beachgrass and scotch broom to the exposed soils of the trails. Seeds and pieces of vegetation caught on vehicles are deposited along the trails. These plants are adapted to survive on disturbed habitats and frequently crowd out the native vegetation, reducing the quantity and quality of important wildlife habitat.

In addition to spreading non-native vegetation, the network of trails created by off-highway travel fragments the large habitat blocks. Habitat fragmentation affects both the vegetation and wildlife using the habitat. The unvegetated trails alter the light intensity, temperature, and moisture within the adjacent habitat blocks. These changes in the physical environment influence the plant composition and distribution along the habitat edge. As distance from the trails increases, the effects of these factors is reduced, but their influence extends a substantial distance into the interior of each block. Highly fragmented landscapes such as the CBS contain a much greater proportion of edge habitats than would occur naturally, and the block size of the remaining interior habitats are much smaller. Although some wildlife species may be adapted to both types, edge and interior habitats generally support different groups of species. The wildlife adapted to interior habitats are frequently specialist species which require large contiguous areas of only a few habitat types and have a low tolerance for changing environmental conditions. Continued use of existing trails and development of new trails by OHVs would further fragment the habitats of the CBS, reducing native habitat quality and quantity.

Habitat fragmentation has other effects on wildlife species. Trails provide corridors for avian and terrestrial predators to facilitate hunting within the interior habitat blocks. Habitats such as deflation plain wetlands densely vegetated by willows and other shrubs provide very effective security cover for breeding bird and mammal species. Open trails compromise the integrity of these habitat blocks and expose these species to predation at elevated levels. Additionally, wildlife traveling between habitat patches and crossing these open trails and edge habitats are more vulnerable to predation.

In addition to habitat changes, off-highway vehicle use has direct effects to wildlife. The presence of people and the noise of machines alters the behavior of many species. Vehicle travel on the trails near wetlands often causes waterfowl or shorebirds to temporarily abandon a preferred nesting, foraging or resting site. When an animal abandons a nest or young for even a short time, the reproductive effort is at great risk. Predators may destroy the nest or young, unattended eggs may be killed by weather conditions, or the nest may be made more susceptible to nest parasitism by cowbirds. Parents may abandon the young completely. Additionally, the adults may have to expend substantial energy reserves to flee and return. When foraging or resting wildlife are flushed from their habitat, the amount of time that animal is able to forage or rest is substantially reduced and energy expenditure is increased. Many wildlife species have been shown to alter foraging times to avoid times of disturbance. Shorebirds may forage in late evening or even at night on beaches where human disturbance is high, even though foraging effectiveness at that time is greatly reduced. The result can be a net loss in foraging productivity. Repeat disturbance may result in site abandonment by a species or groups of species.

Campgrounds and day-use areas have additional impacts. A direct effect is the removal of habitat and disturbances to wildlife during construction of the facility. Despite site design that minimizes habitat loss, losses still occur. A secondary effect of these facilities is the increase in visitor use. Visitation increases can be expressed in both motorized and non-motorized impacts as discussed previously.

Issue: Wildlife Habitat Management

Impacts to wildlife habitats and groups of wildlife are discussed for each alternative. Habitats covered are: beach, open sand, stabilized sand, wetlands, forest communities and estuary. Wildlife groups discussed are: reptiles and amphibians, songbirds, shorebirds, waterfowl, raptors and mammals.

Alternative A - Impacts to Wildlife

Under Alternative A, wildlife disturbance caused by motorized recreation would not decline noticeably due to the open sand free-play area, improvements in the principal access road corridor on the foredune, and continued motorized uses on both the bay and ocean beaches. In particular, continued motorized use on the northern bay beach would impact one of the most important areas of shorebird habitat on the Coos Bay estuary.

Disturbance caused by non-motorized recreation would increase substantially. Development of an easily accessible campground and equestrian facility would create a high use recreational site which would increase disturbance to shorebirds, waterfowl and wading birds to moderately high levels.

Wildlife Habitat Impacts Under Alternative A

Beach - Alternative A would restrict vehicular traffic to a narrow one-lane thoroughfare on a 1.25-mile stretch of bay beach south of the Anadromous facility in Section 18. Disturbance to wildlife would remain at current levels or increase due to facilitated access under MA2-A. Seasonal restrictions would limit motorized use on the ocean beaches from March 15 through September 15. During this period, recreational disturbance of wildlife would decrease substantially from motorized vehicles; however, associated facility development on the foredune would produce large increases in the number of non-motorized recreationists potentially negating the beneficial elements of seasonal beach closure. Substantial disturbance would continue to occur to shorebirds and waterfowl on the bay beach and shorebirds on the ocean beach.

Non-motorized use would increase dramatically along the bay beach south of the Anadromous fish hatchery and along the ocean beach parallel to the paved access road all the way to the North Jetty.

Open Sand - Vehicular impacts to this habitat overall would decrease with the exception of the 260-acre open sand free-play area. If normal use patterns prevail, the greatest impact from vehicles is likely to be to adjoining habitat areas due to vehicle trespass. This is a particular concern for two reasons. First, the adjoining areas consist largely of deflation plain wetlands which are very sensitive to mechanical disturbance due to early soil development processes and are heavily utilized by a variety of species that contribute substantially to local biodiversity. Second, compliance in limited OHV areas that are not large enough to contain the preferred type of OHV experience for most riders can be a difficult enforcement problem.

Stabilized Sand - The current habitat loss and disturbance to wildlife would decrease under Alternative A. However, approximately 35 acres (computed using 5.5 miles of pavement with a 50-foot right-of-way) would still be dedicated to the paved access road. Many of the closed trails would immediately begin revegetating, and populations of songbirds and small mammals would be subjected to lower disturbance levels.

Wetlands - Vehicular impacts to wetlands and habitat fragmentation would cease. Vehicular disturbances to wildlife in this species rich habitat would also cease except wetland areas adjacent to any of the paved roads. In many cases, damaged wetlands would begin to repair themselves as soon as use is stopped. Populations of less mobile organisms would not become isolated, and natural diversity and abundance of wildlife would be expected to flourish.

Non-vehicular impacts to wetlands would increase compared to current levels of non-vehicular use, particularly in the area of the proposed campground and along the proposed non-motorized trails. Impact from all uses, however, would show a net decline.

Forest Communities - Although unrestricted vehicle use and camping would cease in the Sitka spruce and shorepine forest communities, the impact reductions would be partially offset by disturbance from non-motorized recreation. Campground and equestrian facilities would primarily be responsible for this offset.

Estuarine Habitats - Vehicle impacts to the salt marsh habitat would be reduced on a substantial portion of potential habitat. Vegetation reestablishment would begin immediately on those portions of the salt marsh not subject to mechanical disturbance (see effects on vegetation communities below). Vehicle disturbance, however, would increase as a result of road improvements in Section 18 (MA2-A). In addition, dramatic increases in non-vehicular recreation would be expected.

Wildlife Group Impacts Under Alternative A

Amphibians and Reptiles - As wetland habitats improve, amphibians and reptiles (including the red-legged frog, a federal candidate species) would approach a natural abundance. For example, habitat for the Western red-backed salamander and ensatina would be protected from vehicular impacts, unauthorized human occupancy, and camping.

Songbirds - Current adverse impacts of vehicular use in stabilized sand, wetland, and forest community habitats would cease. Avian and mammalian predators that thrive in edge communities would potentially decrease.

Non-vehicular disturbances to songbirds would rise dramatically in the area of proposed recreational developments, especially the campground. The relatively unique migratory and nesting songbird habitat in and around the great blue heron/great egret rookery would experience an increase in non-vehicular recreational disturbances.

Waterfowl - As vehicular impacts to wetlands cease and their recovery begins, waterfowl habitat would improve. Vehicular disturbances of waterfowl would decrease through much of the proposed ACEC. However, vehicle-induced disturbances of waterfowl along the bay beaches would continue. Increased vehicular disturbances would occur on the south (north) perimeter of the Weyerhaeuser effluent lagoon due to the newly paved road.

Non-vehicular disturbances to waterfowl would increase dramatically along the bay as more people access the area on foot or horseback, due largely to the proposed campground (MA7-A) and the proposed day-use area in Section 18 (MA9-A).

Shorebirds - Shorebird habitat associated with the deflation plain wetlands would improve as soon as vehicular use ceases. Vehicular-related disturbances would continue at increased levels on the bay beach, along the south perimeter of the Weyerhaeuser effluent lagoon, and seasonally on the ocean beach.

Non-motorized disturbances to shorebirds would increase dramatically along the bay south of the Anadromous fish hatchery and the entire ocean beach south of the effluent lagoon.

Mammals - The campground and other developed recreational facilities would increase garbage and litter, favoring opportunistic predators such as skunks, coyotes and opossum. Increases in these species, especially skunks, could continue to depress the snowy plover reproductive rate.

Alternative B (Proposed Action) - Impacts to Wildlife

Alternative B would provide the second highest level of protection for wildlife resources and result in substantial improvements for special status species, wetlands, and other ACEC resources. Wildlife disturbance caused by motorized recreation would decline substantially from the current situation. Motorized use would be concentrated along the access road corridor; motorized use would be restricted from the ocean beaches and from the salt marsh area south of the Anadromous fish hatchery. This would protect the shorebird and waterfowl concentration area from vehicle disturbances. Additionally, all key habitats on the CBS would be protected from habitat degradation due to uncontrolled vehicles.

Non-motorized disturbances would be expected to increase, primarily in the vicinity of the day-use developments and along the beach and foredune from the parking area south to the North Jetty of Coos Bay.

Wildlife Habitat Impacts Under Alternative B

Beach - Elimination of all vehicular disturbances of wildlife along all the ocean beaches and a 1.25-mile stretch immediately south of the Anadromous fish hatchery would protect an important area where shorebirds concentrate. However, roughly 50 percent of shorebird habitat south of the old U.S. Life Saving Station would continue to be subjected to vehicular disturbance.

Non-motorized use of the beach habitat would increase as access areas are improved for hikers and equestrians. Keeping a 4-wheel trail open down the entire spit would potentially increase the non-motorized use of the ocean beach habitat.

Open Sand - Vehicular impacts to habitat and disturbances to wildlife would cease under Alternative B, similar to Alternative C. A slight predicted increase in non-motorized use would proportionately increase non-vehicular disturbances to wildlife. Overall disturbance to wildlife would be minimal compared to the No Action Alternative.

Stabilized Sand - Vehicular impacts to habitat and disturbance to wildlife would be greatly reduced under Alternative B. Many trails would immediately begin revegetating, and populations of songbirds and small mammals would be expected to stabilize or increase. Birds of prey would be expected to maintain stable populations. Non-vehicular disturbance would increase substantially along the foredune in the area adjacent to the parking areas proposed under MA1-B.

Wetlands - As with Alternative C, vehicular impacts to wetlands would cease under Alternative B. Vehicular disturbances to wildlife in this species-rich habitat would also cease except in wetland areas near developed recreation facilities. In many cases, damaged wetlands would begin to repair themselves as soon as use is stopped. Populations of less mobile organisms would not become isolated, and a natural diversity and abundance of wildlife would be expected to flourish.

Non-vehicular disturbances would increase as vehicle access is limited, but overall disturbance to wildlife under Alternative B would be substantially less than under the No Action Alternative.

Forest Communities - Similar to Alternative C, unrestricted vehicle use and camping would cease in the Sitka spruce and shorepine forest communities under Alternative B. The great blue heron/great egret rookery would receive maximum protection. Habitat loss from vehicular use would cease, and disturbances to wildlife species—especially neotropical migrant birds—would diminish substantially.

Non-motorized access and associated disturbances to wildlife would increase as vehicle access is stopped and day-use facilities are developed in support of low-impact activities.

Estuarine Habitats - Vehicle impacts to the salt marsh habitat would stop and some natural re-establishment would begin immediately. Vehicular disturbances to some of the greatest concentrations of waterfowl, wading birds, and shorebirds immediately south of the Anadromous fish hatchery would cease, but roughly 50 percent of total estuarine habitat would still be open to vehicular disturbances in the area south of the old U.S. Life Saving Station.

Wildlife Group Impacts Under Alternative B

Amphibians and Reptiles - The consequences of Alternative B would be similar to Alternative A.

Songbirds - Current adverse impacts of vehicular use in stabilized sand, wetland, and forest community habitats would cease except in areas adjacent to developed recreation facilities. Avian and mammalian predators that thrive in edge communities would potentially decrease and remove unnaturally high predation pressure on other species. As adverse impacts to wetlands cease and recovery begins, populations of wetland-dependent species should approach natural levels. The relatively unique migratory and nesting songbird habitat in and around the great blue heron/great egret rookery would be relatively disturbance free.

Non-motorized disturbances to songbirds would be expected to increase around the day-use area in Section 18, the combined trailhead/equestrian staging site in Section 7, and the foredune area adjacent to developed parking areas and pavement (MA1-B).

Waterfowl - Waterfowl habitat would improve as vehicular impacts to wetland cease and their recovery begins. Vehicular disturbances of waterfowl would decrease throughout the proposed ACEC, especially along the bay south of the Anadromous fish hatchery. However, vehicle-induced disturbances of waterfowl would continue south, from the old U.S. Life Saving Station to the south end of CBS. Increased vehicular disturbances would occur on the south and west perimeter of the Weyerhaeuser effluent lagoon due to proposed road improvements (MA1-B).

Non-vehicular disturbances to waterfowl would increase along the bay as more people access the area on foot or horse. The overall disturbance level to waterfowl, however, would be substantially less than under the No Action Alternative.

Shorebirds - Shorebird habitat associated with the deflation plain wetlands would begin to improve as soon as vehicular use ceased. Vehicular-related disturbances likewise would cease with the exception of the beach on the bay side, from the old U.S. Life Saving Station south to the North Jetty, and along the south perimeter of the Weyerhaeuser effluent lagoon.

Non-motorized disturbances to shorebirds would increase along the bay immediately south of the Anadromous fish hatchery. Ocean beaches would also receive increased recreational disturbance between the paved beach access parking lot in Section 13 and the north jetty. Disturbance would be greatest to the north in the immediate vicinity of road improvements and developed parking facilities.

Mammals - No increase in opportunistic predators (skunks, coyotes, opossum) would be expected as habitat fragmentation is reduced and garbage and litter decrease.

Alternative C - Impacts to Wildlife

By limiting all vehicle use to the proposed 1.5 miles of new paved roads north of the proposed ACEC boundary, Alternative C would provide the greatest level of protection for wildlife. Limiting access beyond the paved roads to non-motorized forms of transportation would substantially protect the sensitive wetland habitats, reducing the extensive fragmentation of the upland habitats and eliminating vehicle disturbance to wildlife within the proposed ACEC and substantially reducing it elsewhere on the CBS.

Wildlife Habitat Impacts Under Alternative C

Beach - By eliminating OHV use over all BLM-administered lands in the planning area, Alternative C would eliminate all vehicular disturbance of wildlife species along both ocean and bay beaches. Use of the area in the long term by shorebirds, wading birds, and waterfowl would be expected to increase as harassment and disturbance ceases. Mortalities from vehicles would cease. Poaching would decrease as vehicular restrictions make illegal activities and concealment of weapons more difficult.

Marine mammals, which currently have very limited use on the CBS, may increase here as vehicular disturbances cease.

Non-motorized recreational use of the beaches and subsequent disturbances to wildlife would increase as vehicles are banned. Overall, though, the amount of disturbance to wildlife would be minimal when compared with the current situation or Alternative A.

Open Sand - The closing of open sand areas to motorized use under Alternative C would eliminate vehicular disturbance to wildlife and access to adjacent habitats. A slight predicted increase in non-motorized use would increase non-vehicular disturbances to wildlife. Overall, the amount of disturbance to wildlife would be minimal when compared with the No Action Alternative or Alternative A.

Stabilized Sand - The current habitat loss and disturbance to wildlife would cease under Alternative C, except in areas adjacent to recreational facilities. Many trails would immediately begin revegetating, and populations of songbirds and small mammals should stabilize or increase. Birds of prey would be expected to maintain stable populations.

Wetlands - The environmental consequences to this habitat type from actions proposed under Alternative C would be similar to the effects of Alternative B. The notable exception would be a decrease in disturbance toward the south end of the proposed ACEC due to the difficulty associated with limited recreational access.

Forest Communities - The effects of Alternative C on forested communities would be the same as under Alternative B.

Estuarine Habitats - Vehicle impacts to the salt marsh would stop and some natural re-establishment would begin immediately. Vehicular disturbance to the greatest concentrations of waterfowl, wading birds, and shorebirds on the CBS would cease.

Wildlife Group Impacts Under Alternative C

Amphibians and Reptiles - Effects to amphibians and reptiles would be the same Under Alternative C as under Alternative B, with the additional benefit of reduced incidents of vehicle trespass into their habitat.

Songbirds - Effects to songbirds under Alternative C would be similar to effects under Alternative B, except Alternative C would lack disturbance from vehicles traveling on designated OHV routes.

Waterfowl - As vehicular impacts to wetlands cease and recovery begins, the waterfowl habitat would improve. Vehicular disturbance would cease throughout the proposed ACEC, especially along the bay south of the Anadromous fish hatchery. Some increased vehicular disturbance would occur in the Weyerhaeuser effluent lagoon due to the new road construction along the south and west perimeter.

Non-vehicular disturbances to waterfowl would increase along the bay as the area gains appeal for this form of recreation. The overall disturbance level to waterfowl would be minimal, however, when compared with the current situation.

Shorebirds - Shorebird habitat associated with the deflation plain wetlands would begin to improve as soon as vehicular use ceases. Vehicular-related disturbances would cease also with the exception of some added disturbances due to the new paved road along the south and west perimeter of the Weyerhaeuser effluent lagoon.

Non-motorized disturbances to shorebirds would increase along the bay immediately south of the Anadromous fish hatchery, as well as along the ocean beach adjacent to the paved beach access parking lot in Section 13.

Mammals - No increase in opportunistic predators (skunks, coyotes, opossum) would be expected as habitat fragmentation becomes reduced. Garbage and litter would decrease also under the various actions of Alternative C.

Marine mammals (such as harbor seals, sea lions and elephant seals), which rarely use the CBS now, may begin to use the bay and ocean beaches as stop-over resting and forage locations.

No Action Alternative - Impacts to Wildlife

Under the No Action Alternative, the opportunities for management of wildlife habitat on the CBS would remain extremely limited. Unmanaged recreational use would continue with no designation of types, location, intensity, duration or season of uses which are considered appropriate for meeting the goals and objectives of the proposed ACEC. There also would not be any management actions planned for the remainder of the CBS. Consequently, the No Action Alternative would have the greatest impact on wildlife and wildlife habitat in terms of the amount of disturbances to wildlife species and the amount of habitat lost or modified.

Wildlife Habitat Impacts Under No Action Alternative

Beach - Vehicle travel on the ocean and bayside beaches would continue to be unrestricted under the No Action

Alternative except for seasonal closures of the ocean beach to protect nesting snowy plovers, a federal threatened species. A major impact would be the vehicle disturbance to other ocean and bay beach wildlife. Disturbance of wildlife utilizing the estaurine waters of the bay would also be substantial.

When a vehicle typically passes along a portion of the beach, nearly all of the shorebirds, terns and gulls are temporarily displaced from their feeding and resting grounds. Many of the waterfowl present on the estuary within approximately 150 feet of the shore are also displaced and either take flight or move away from their foraging sites to more secure areas. Great blue herons and great egrets also usually take flight and leave the area for a period of time. Frequently when a vehicle drives the length of the beach the wildlife present would be disturbed numerous times as they move down the beach or estuary ahead of the vehicle. Although these disturbances may seem insignificant, repeated disturbance greatly reduces the amount of time these species are able to forage in their preferred habitats and may also increase their vulnerability to predation. These disturbances would continue under the No Action Alternative.

Vehicular access to the beaches has other associated impacts to wildlife as well. Numerous birds have been found injured or killed by vandals who use weapons or vehicles to kill various animals. People have been documented driving slowly along the bayside beach, stopping at sites where birds were numerous and shooting them from their vehicles. Many birds have also been found in groups on the ocean beaches, their wings and body bones severely broken by people driving vehicles at high speeds along the beaches. The numbers of birds found in close proximity indicate these collisions were deliberate. This mortality would continue under the No Action Alternative, with the exception of the ocean beach during March 15 to September 15 when this area would be closed to off-highway vehicles.

Non-motorized recreational use of the beaches would also continue to cause disturbance to wildlife. People walking along the beaches disturb shorebirds and waterfowl using the estuary. The disturbance to wildlife caused by non-motorized recreation are usually much less severe than disturbance caused by motor vehicles due to the slower speeds and lower numbers of non-motorized recreationists. Often people walking slowly along the upper portions of the beach do not flush shorebirds near the waterline. However, people with unleashed dogs have a greater chance of disturbing birds.

Open Sand - Effects of motorized recreational use of the open sand habitats are not well known. Relatively few wildlife species are known to use this habitat heavily, but this assumption is in part due to a lack of knowledge about the insects and other invertebrate species that are the predominant users. Extensive use of motor vehicles may damage the few plant species normally present in the unstabilized sand areas.

Recreational use of open sand areas has also increased the amount of trash present onsite. This trash provides a non-natural food source helping to maintain unnaturally high levels of crows, ravens and jays to prey on the snowy plover and other small birds.

Perhaps the most concern for open sand areas is their impact and access to adjoining habitats such as wetlands and forested areas where specific habitat impacts have been documented. Under the No Action Alternative, these impacts would continue.

Stabilized Sand - Unconstrained vehicle use would continue on the current trails within this habitat and new trails would continue to be pioneered. Habitat loss and disturbance to resident species of songbirds and small mammals would be expected to continue. Ultimately, these prey species may decline to the point where predator species such as northern harriers, red-tailed hawks, and white-shouldered kites would be expected to decline proportionately.

Wetlands - Off-road vehicle use would continue to occur on existing trails within wetlands, and new trails would continue to be pioneered under the No Action Alternative. Because wetland habitats are very complex and fragile, their ecosystems are extremely sensitive to physical disturbance which would continue to occur under the No Action Alternative. Natural vegetation in trail areas would be destroyed or reduced to only a few species of sedges. Damage to the wetland overstory vegetation would reduce the wetlands thermal cover, increase evaporation, and retard the re-establishment of wetland vegetation. Non-native species such as scotch broom and European beachgrass could invade formerly wetter sites.

Under the No Action Alternative, habitat fragmentation would continue. For some species, the unsuitable habitat of a road or trail may become a barrier to movement, restricting or eliminating movement between populations in adjacent suitable habitats. These barriers may also prevent species from migrating into areas of more suitable habitat as the edges of the wetlands dry out during the summer months.

Increased fragmentation and edge within the wetlands may favor non-native or predatory species. Increasing the number of trails and the amount of edge habitat may increase both the competition for food resources and the vulnerability of some wetland species to predation.

Motorized vehicle use in and adjacent to wetland habitats would continue to occur under the No Action Alternative. This would cause waterfowl and shorebirds to leave smaller wetlands, reducing their foraging and resting time and potentially increasing their vulnerability to predation. Eventually, this disturbance could lead to abandonment of a site.

Forest Communities - Unrestricted vehicle and camping use would continue to occur in the Sitka spruce and shorepine forest communities. The road going to the great blue heron/great egret rookery would likely continue to deteriorate due to increased vehicle use. Its continued reopening could potentially reduce the cover between the rookery and the road. Although habitat loss from vehicle use would not be as great in forest communities as in other more open habitats, disturbances to wildlife populations would be potentially greater given the utilization patterns of forested communities for important resting, foraging and cover. In addition, forested areas provide nesting and migratory habitat to perhaps the widest variety of species on the CBS, further magnifying the effects of recreational disturbance. The great blue heron/great egret rookery would continue to receive increasing numbers of visitors and would likely become less desirable for nesting due to repeat disturbance.

Uncontrolled camping and illegal homesteads would likely increase in forest habitats on the CBS. These would increase harassment of wildlife, waste, and sanitation concerns. It would also increase the populations of crows, ravens and other predators. Increases in these species would reduce their prey species such as shorebirds, songbirds and waterfowl.

Estuary Habitats - The salt marsh just south of the Anadromous facility is a very limited habitat not only on the CBS, but in all of North America. Vehicle impacts to the estuary habitats would continue under the No Action Alternative. These impacts would potentially affect the shiner perch and bullhead which reside here during high tide; vehicle use also may impact the waterfowl, wading birds, and shorebirds which feed on these fish or invertebrates that also utilize this area.

Although the amount of damage has not been documented, vehicles may also be compacting intertidal sediments, damaging some of the productive tidal areas where numerous invertebrates reside. These invertebrates are a source of food for numerous wading birds, shorebirds and waterfowl.

The bay just south of the Anadromous fish hatchery has some of the highest concentrations in the CBS of shorebirds and waterfowl, including black brant and Canada geese. Under the No Action Alternative, vehicular disturbance of estuarine beaches would continue.

Wildlife Group Impacts Under No Action Alternative

Amphibians and Reptiles - This species groups would continue to be adversely affected as wetlands are further impacted by off-road vehicles. The red-legged frog, a federal candidate species would be one of those species adversely affected. The Western red-backed salamander and ensatina, which reside under downed logs in the forested communities, would likely be adversely affected as human occupancy and vehicle use increases in these areas.

Songbirds - Songbirds would be adversely affected by unconstrained off-road vehicles in the stabilized sand, wetland and forest community habitats. Habitat changes in the stabilized sand communities would continue to create more edge and likely increase habitat for the avian and mammalian predation of this group. As wetlands decrease and become more fragmented, wetland-dependent species such as marsh wrens, common yellowthroats, and red-winged blackbirds would be expected to decrease.

Disturbances and habitat loss in the forested communities under the No Action Alternative could potentially affect a large number of nesting and migratory neotropical songbirds that use this relatively-isolated, unique habitat.

Waterfowl - Waterfowl would continue to be affected by the fragmentation of wetland habitat on the deflation plain due to unrestricted vehicle use there. Disturbance to waterfowl would continue to be significant along the bay south of Anadromous.

Shorebirds - Shorebirds would be affected in a similar way to waterfowl by the No Action Alternative. There would be additional disturbance by vehicles along all the beaches except the ocean beach from March 15 through September 15.

Mammals - Species (such as coyote, skunk, raccoon, fox and some rodents) that are adapted to edges of habitats and are largely opportunistic feeders would continue to increase under this alternative due to habitat fragmentation and increasing foraging opportunities provided by the absence of waste and sanitation facilities. Black-tailed deer, bobcats, bats and possibly mink would be expected to decrease under the No Action Alternative due to a decrease in foraging, hiding, or roosting habitat and a proliferation of vehicle-related disturbances.

Marine mammals (such as harbor seals, sea lions and elephant seals), which typically do not use beaches of the CBS, may be disturbed the occasional times they haul-out on the beach. Harassment from motorized recreationists along the beach south of Anadromous may continue to adversely affect these species.

Issue: Management of Special Status Species

For the species listed below, each alternative would present a unique set of consequences that would produce varying intensities of disturbance and threat to special status species utilizing the CBS.

Impacts on the Snowy Plover

The principal nesting site of the western snowy plover on the CBS is at the south spoils and beach location identified in Chapter Three. The environmental consequences of the management actions that affect these sites are identified by alternative below. Several actions may be evaluated together if the cumulative effect exceeds the effect of individual actions. If a specific action is not referenced under a given alternative, there is no effect from that action to special status species.

Impacts on Snowy Plover Under Alternative A

Alternative A is likely to adversely impact nesting populations of snowy plovers within the CBS.

Road Construction (MA1-A), Ocean Beach Access (MA5-A), Campground Construction (MA7-A), Equestrian Staging (MA12-A), and Non-Motorized Trails (MA13-A) - Collectively, these five actions are referred to as the south spit recreation actions. The effect of the south spit recreation actions on the western snowy plover would be substantial and probably threaten continued nesting success in this area.

Paved two-wheel drive access to the north jetty would result in increases in visitation of 1000 percent or more and would bisect the two known nesting locations in the area, the south spoils and the south beach. Attending this influx of visitors would be waste and sanitation problems that could not be fully mitigated, which alone would attract a large increase in opportunistic predators that are documented causes of mortality to plovers and their chicks. In addition, the presence of a large number of visitors would produce greatly elevated levels of disturbance. Although the effect of human presence on the nesting success of plovers is not well documented, adverse effects can be assumed.

In addition to increasing the number of visitors, the combined effect of a campground, day-use facility, equestrian staging area, and trailheads in Section 25 would encourage sustained occupancy of the area. Current conditions (No Action) in this area produce a high level of disturbance from vehicles, but these disturbances are sporadic and limited in duration. The south spit recreation actions would intensify an already adverse situation.

The presence of multiple equestrian staging areas (MA12-A) on the CBS may increase this type of use. Current equestrian use on the CBS, however, produces no identified impact to plovers so any increases in impact would be modest.

Beneficial consequences to the snowy plover from the south spit recreation actions are limited to the seasonal closure of the ocean beach to motorized uses (MA5-A). This would eliminate disturbance from motorized uses on the ocean beaches but when viewed cumulatively, the impacts to the plover from these combined actions would be substantially higher than under current conditions (No Action).

OHV Status (MA3-A) - Limiting OHV use would reduce impacts to snowy plovers where they occur throughout the CBS with the exception of the OHV open area (MA6-A). Particularly in the area of the south spoils, plovers would benefit from the absence of ATVs and other off-highway vehicles. Nonetheless, because of the improvements for conventional motorized uses, overall disturbance levels from recreation would still be higher than under current conditions.

OHV Open Area (MA6-A) - Currently, there is no documented use of this area by plovers despite its status as one of the few area of remnant open sand habitat.

Undeveloped Camping (MA8-A) - This action involves exclusion of undeveloped camping within 200 feet of all developed facilities, including roads, but not most ocean beaches. Under current conditions, this type of use is minimal and poses no known threat to plovers. Under the conditions created by the south spit recreation actions, however, the ocean beaches would be much more readily accessible to a wider variety of recreationists. This increased accessibility may also increases beach camping, potentially causing serious impacts to the birds. Seasonal restrictions may be needed if such impacts were documented. Monitoring of undeveloped camping would be performed as a part of routine plover inventory work.

Sanitation (MA10-A) - The proposed sanitation improvements would partially mitigate the effects of large increases in visitation. Common use patterns, however, indicate intensified levels of recreation activity produce waste management problems that attract opportunistic predators to prey on plovers and their chicks. Because this alternative would make the south spit a focal point of recreation activity, it directly conflicts with plover management objectives.

Beachgrass Management (MA18-A) and Scotch Broom Control (MA19-A) - The combined effect of these two actions would be potentially beneficial to the plover and its nesting efforts. Predator cover would be reduced and suitable nesting habitat would be expanded. An expanded habitat area on the southern spit would, however, be inconsistent with the planned level of recreational development by attracting more birds to an area that is slated for high visitation. Under a different scenario (Alternative B, for example), such enhancement would be promising. In March of 1994, an experimental habitat expansion and predator cover reduction action was successfully implemented.

Impacts on Snowy Plover Under Alternative B

This alternative would create substantial benefits for the snowy plover, but not as great as under Alternative C.

Road Construction (MA1-B), OHV Status (MA3-B), Bay Beach Access(MA4-B), Ocean Beach Access (MA5-B), and Non-Motorized Trails (MA13-B) combine to replace the southern spit recreation actions proposed under Alternative A. Although several of these actions do not take place on the southern spit, they are the key actions that help to meet the objectives of Alternative B. They produce a balanced mix of actions that would increase the recreational appeal of the CBS while providing expanded protection for biological resources and ACEC values.

Road construction under this Alternative B (MA1-B) would take place north of the ACEC boundary and be confined to the margins of the effluent pond. Although this would greatly increase visitation to the ocean beaches within the CBS, this center of this activity would be near the effluent pond, approximately 3.5 miles from the southern tip of the spit. The year-round restriction of ocean beach access to non-motorized uses only (MA5-B) would eliminate impact to plovers from motor vehicles on the ocean beaches. Also, use patterns at nearby Horsfall Beach suggest that facilitated access at the effluent pond would cause only minimal increases in non-motorized visitation at the south end of the spit. The net effect of MA1-B and MA5-B would be a substantial reduction in recreational disturbance to plover on the ocean beaches.

The effect to plovers nesting in or adjacent to the south spoils site must include an analysis of the cumulative effects of other related actions. In particular, OHV status (MA3-B) and limited bay beach access (MA4-B) would combine to increase traffic on the foredune road skirting the south spoils site on the west. Because the foredune road would become the sole motorized access route to bay beach resources and the north jetty, traffic would increase substantially. Current use of the foredune road is sporadic and does not appear to adversely affect inland plover nest sites. These two actions may result in elevated levels of disturbance, necessitating monitoring to evaluate the need for seasonal closures or rerouting of the southern section of the foredune road.

Non-motorized trails (MA13-B) under Alternative B would result in very minor increases in recreational use of the southern portion of the spit and would not significantly affect the plover.

Beachgrass Management (MA18-B) and Scotch Broom Control (MA19-B) - These actions would result in greater benefits for the plover compared to the same actions under Alternative A. The added benefits would be due partly to the more permissive nature of the action and partly because these actions would be coupled with reduced levels of disturbance. The 1994 habitat enhancement action described in the analysis of Alternative A produced two additional nests under a No Action scenario. Although motorized use of the foredune would increase, MA18-A and MA19-B would provide the basis for sustained management of the plover populations on the north spit.

Impacts on Snowy Plover Under Alternative C

This alternative would provide the greatest benefits to the snowy plover of the four alternatives, including the No Action.

Road Construction (MA1-C), OHV Status (MA3-C), Bay Beach Access (MA4-C), and Ocean Beach Access (MA5-C) - These actions combine to shape the dominant use patterns and recreational impacts to nesting plovers under Alternative C. Although the road construction proposal (MA1-C) is the same as under Alternative B, the effect is very different because related actions create different cumulative effects. Disturbance on the southern spit ocean beaches due to non-motorized recreationists walking on the ocean beaches from the central conventional access point near the effluent lagoon is the same as under Alternative B. Replica conditions would be produced under either alternative. However, because Alternative C restricts all motorized uses within the ACEC, the main effect occurring under Alternative B (the displacement from the bay beaches to the foredune road) would not occur. Human disturbance to both ocean beach and south spoil nesting populations would be greatly reduced under Alternative C.

The combined effect of locating all recreation proposals north of the ACEC boundary would produce use patterns that locate the majority of human use well away from plover populations. The exception to this is the north spoils site located in Section 7. However, no birds have been detected at this site during the last two breeding seasons, indicating that this site may have been abandoned.

Beachgrass Management (MA18-C) and Scotch Broom Control (MA19-C) - If implemented under the accompanying management actions of Alternative C, these two actions would produce substantial benefits to the plover. Habitat improvements and reductions in predator habitat would be coupled with actions that reduce human disturbance to extremely low levels.

Impacts on Snowy Plover Under No Action Alternative

The No Action Alternative would allow unconstrained recreational activity to continue with random and unpredictable effects to plovers. While the dominant cause of the plover's decline is habitat loss due to the encroachment of European beachgrass, there is documented mortality due to OHV activities within the CBS. Voluntary seasonal closures of the ocean beach may marginally reduce some impact, but adverse effects from human use would still be a significant concern.

Impacts to Other Special Status Species

Impacts on Peregrine Falcon

Under Alternative A, increased use levels within the main paved access corridor (MA1-A) would have the potential of displacing foraging and resting falcons within the corridor and on adjacent ocean beaches. Also, as the CBS becomes more of a recreation destination, the bay beaches may experience elevated levels of use that would then increase disturbance levels to falcons resting and foraging in those areas. This is of particular concern because the bay beaches provide prime foraging areas for peregrines which are specialized bird predators. The OHV open area (MA6-A) proposed for the area around Section 18 would also displace resting and foraging falcons.

Under Alternative B, the closure of the ocean beaches to motorized use would eliminate the majority of disturbing activity. Since increases in visitation would be most intense around the effluent pond, relatively low levels of disturbance would occur elsewhere. On the northern bay beach, restrictions on motorized vehicles (MA4-B) would eliminate most disturbance. However, other recreation proposals—particularly the watchable wildlife site proposed for Section 19 (MA15-B)—would increase non-motorized traffic in the area. Disturbance to peregrines from these activities would be minimal.

Under Alternative C, restrictions on motorized uses within the ACEC would eliminate the majority of disturbing factors to peregrines in that area. Relatively intensive development around the effluent lagoon (same as Alternative B) would displace most foraging peregrines to other areas of the CBS. Elimination of vehicle use on the bay beaches would large restore the premiere foraging area on the CBS to an undisturbed state except in the area adjacent to the proposed day-use site (MA9-C) in Section 18.

The No Action Alternative would allow continued levels of disturbance to continue unabated. Recreational use on the bay beaches is intensive and thus causes a relatively high level of disturbance in the premiere foraging area within the CBS.

Impacts on Bald Eagle

Impacts on the bald eagle would be the same as those for the peregrine falcon.

Impacts on Brown Pelican

The brown pelican typically roosts on islands of the bay beaches in late summer. They forage in the waters near the mouth of the bay and adjacent ocean locations. Although most alternatives would increase the level of visitation substantially, the distance from the islands where the pelican rests to where the recreational use would be concentrated is great enough that minimal disturbance levels would be expected. Under the intensive development scenario of Alternative A, use of the bay beaches could increase greatly and may pose some disturbance concern. However, it is unlikely that even these projected use levels would significantly reduce foraging efficiency or cause displacement.

Impacts on Western Pond Turtle

No occurrences of pond turtles have been documented in recent surveys on the north spit, although pond turtle habitat does occur in the deflation plain wetlands. While increased human use would occur as a result of all alternatives except No Action, the development proposals would be sited away from these sensitive areas. The proposed changes in OHV status (MA3-A, B and C) would substantially reduce impacts to wetland habitats. Potential pond turtle habitat on the CBS would be expected to improve over time.

Analysis of Vegetation Impacts

Impacts and Management of Non-Native Species

Non-native vegetation is one of the main impacts to native biological resources on the CBS. This plan would mitigate these impacts where practical. Non-native vegetation would continue to be very dominant within the CBS. However, specific management of non-native species in areas that are critical to special status species would improve the opportunities for species recovery.

Impacts and Management of European Beachgrass

European beachgrass would continue to be the dominant species occurring on the CBS. Efforts to remove the species would be tied to specific management objectives other than reduction in beachgrass stocking levels. Under Alternative A and the No Action, removal of European beachgrass would only occur in areas which are in direct conflict with critical ACEC values or resources such as special status species. No enhancement of special status species habitat would occur. Impacts between non-native vegetation and special status species would be held at current levels.

Alternatives B and C both allow for the removal of European beachgrass in areas where direct impacts to critical ACEC values or resources is occurring, as well as in limited other areas to create habitat enhancement opportunities. This is likely to mitigate current impacts to a limited degree (removal of European beachgrass may not mean a commensurate increase in snowy plover habitat because other features such as vegetation and beach material (shells, wood, sand color) may play important roles in determining where snowy plovers nest. Nesting activities would be monitored in areas where European beachgrass has been treated. Initial treatments will follow EA OR126-94-05 (Snowy Plover Habitat Enhancement/Restoration), incorporated herein by reference. Many treatments may only produce short-term benefits because European beachgrass quickly re-invades treated areas. Follow-up treatments would be necessary to preserve enhancement benefits.

Impacts and Management of Scotch Broom

Scotch broom on the North Spit would also continue to be a dominant and conspicuous species on the CBS under all alternatives. Control efforts under Alternative A would only occur in areas which are directly impacting special status species. Removal would be in local areas which is unlikely to occur in the near future because this species is not impacting any special status species at this time. Unlike European beachgrass, scotch broom does not quickly re-establish dominance once removed from an area.

Under Alternatives B and C, scotch broom removal would occur in areas impacting special status species and where enhancement opportunities for native vegetation could be practically applied. These alternatives also provide for a buffer zone which would further slow re-establishment of this species in treated areas.

No Action provides for no management of scotch broom. This species would continue to spread and increase in density throughout the CBS.

Impacts and Management of Gorse

Under all alternatives, gorse should decrease in abundance and eventually be eradicated from the CBS. Because gorse only occurs in local areas, its control should not be difficult at this time. Monitoring of all treated occurrences would be performed to prevent reinfestations. Removal would occur immediately following observations of re-infestation. Adjacent landowners would be also asked to remove occurrences of gorse.

Impacts on Special Status Species

Impacts to special status plant species and habitats on the CBS are from the introduction and naturalization of non-native vegetation and from conflicts with recreational uses. The special status plant species occurring within the CBS occur in specialized habitats (salt marshes and coastal sand dunes) which are highly susceptible to disturbance.

Impacts on Salt Marsh Bird's-Beak

Under Alternative A, populations of salt marsh bird's-beak would continue to be impacted from OHV use along the bay road. The narrowing of the road (MA4-A) would increase the amount of salt marsh bird's-beak habitat by approximately 230 percent and could more than triple the current population. Impacts from vehicle trespass could reduce these estimates somewhat, but the overall effect would be a large improvement in the status of the plant on the CBS. Recreation impacts may also occur from visitors at the proposed Watchable Wildlife viewing area adjacent to salt marsh bird's-beak habitat, but at levels lower than currently exist. Monitoring would be conducted to determine population trends and the effectiveness of the limited access through the salt marshes.

Alternatives B and C provide the greatest protection for salt marsh bird's-beak populations and habitat. Closure of the bay beach road would nearly double salt marsh habitat and increase the amount of habitat of salt marsh bird's-beak by nearly 500 percent. Recreation impacts may also occur from visitors at the proposed Watchable Wildlife viewing area adjacent to salt marsh bird's-beak habitat, but at levels lower than currently exist. Monitoring to determine the ability of the salt marsh to reclaim the disturbed area would address habitat concerns. Salt marsh restoration may also occur to help speed the recovery of these salt marshes. Management actions outlined by the Interagency Conservation Agreement would help prevent this species from becoming listed under the ESA.

Under the No Action Alternative, salt marsh habitat would continue to remain the same or may actually decrease with increased vehicle use along the bay beach road. This road appears to be increasing in width over the years which would also result in a net loss of salt marsh bird's-beak habitat and increased threats to this population. Population monitoring would continue to determine population trends.

Impacts on Other Special Status Species

Impacts on Sea-lavender

The environmental consequences to sea-lavender under all four alternatives would be similar to salt marsh bird's-beak since these species occur in the same habitat.

Impacts on Pink Sandverbena

Under Alternative A and the No Action, this plan would have no effect on pink sandverbena because no populations currently exist with the CBS. In the event that a new population is discovered following the decision of this plan, the population would be protected and monitored.

Under Alternatives B and C, a new population of sand verbena would be established within the CBS. This population would provide information on methods for future reintroduction projects which may eventually help the species from becoming listed in the future. Recreation impacts are expected to be minimal as any reintroduction efforts would be in areas away from proposed recreation developments.

Land Tenure and Cooperative Agreements

The proposed land tenure adjustments would expand public land holdings within the planning boundaries by approximately 140 acres if successful through acquisition priority four. These parcels would greatly expand the BLM's management options in regard to key issues identified in this plan. Specifically:

- Acquisition priority one would provide BLM with control over critical legal access to bay beach resources. This could effect both the array of recreational activities available to the public, as well as impacts to ACEC values present on these parcels. This parcel would place the BLM as the sole upland manager of salt marsh bird's-beak, simplifying the proposed cooperative agreement recommended for management of this species under the Proposed Alternative. Acquisition would also insulate key recreational and ACEC resources from changes in management emphasis of adjacent landowners.

- Acquisition priorities two and three would consolidate management within the proposed ACEC. This would have the effect of increasing the certainty of protection for key ACEC values within the CBS. In addition, a portion of acquisition parcel three controls legal access on the foredune road to the North Jetty. Ownership or easement of this parcel would secure public access to this key recreational resource.

- Acquisition priority four would provide the necessary acreage for expansion of the North Spit Boat Ramp facility to accommodate a variety of recreational opportunities that would not interfere with the designated current use of the site.

- Additional acquisition priorities would be pursued to consolidate management of ACEC and recreational resources or provide legal access to public lands.

Disposal or Exchange Lands

The CBS has been designated as a mix of Zone 1, 2 and 3 lands in the Coos Bay Draft RMP. These are described as high, moderate and low value retention lands, respectively. In particular, those portions of the CBS that are zoned future industrial under Coos County Zoning Ordinances and the 1984 MFP Amendment are identified as Zone 3 lands (Appendix II-J, Coos Bay District Draft RMP) and are potentially available for disposal via exchange for lands in Zones 1 or 2. Disposal would be unlikely if important recreation, wildlife or cultural values were identified during disposal clearance reviews.

Education and Interpretation

As a consequence of interpretive prescriptions and eventual implementation on the CBS, visitors would experience a change in their knowledge, attitudes and behaviors. Visitors would be able to identify the variety of recreational opportunities that exist, and to distinguish the difference between responsible and irresponsible behavior through identification of sensitive resources and knowledge of how to lessen impact to those resources. Visitors would also be able to recognize that the CBS is made of dune, estaurine, and ocean beach resources that provide prime wildlife habitat that, among other things, provides exceptional wildlife viewing opportunities. They would also have a general knowledge of historical events on the CBS.

Visitor attitudes would change. They would have the knowledge to appreciate efforts by the BLM to develop recreational opportunities. They would be impressed by the rich biological diversity of the area, respect wildlife and wildlife habitat, and enjoy their visit enough to return to the area for multiple visits.

Behaviors would also change. Visitors would consume some subset of interpretive facilities while visiting the CBS, they would exhibit a higher level of compliance with posted closures and regulations and be safe and respectful wildlife viewers. As a cumulative consequence of these objectives, they would stay longer in the Bay Area and visit other area attractions. Some local visitors would want to participate as volunteers on the CBS.

Interpretive prescriptions would include the following analysis:

- Visitor Profiles
- Resource Inventory
- Topic Identification
- Media Prescriptions
- Theme Development
- Specific Visitor Objectives
- Site Development Parameters
- Implementation Schedule
- Cost Analysis
- Effectiveness Evaluation

Law Enforcement

Law enforcement is essential to make future behavioral patterns consistent with management objectives. The consequences of a half-time law enforcement official would be a substantially higher level of compliance with new regulations than would be expected otherwise.

Cumulative Effects

Cumulative effects are of two varieties—those that affect individual natural resources, and those that affect watershed interactions within the Coos River watershed.

As documented in the environmental consequences section above, the cumulative effects of actions affecting recreation, wildlife and vegetation would produce large increases in visitation. These cumulative effects would occur particularly in areas occupied by sensitive resources at the south end of the North Spit. These large increases in the appeal of the area would be fueled by the placement of a variety of high quality recreational opportunities within a small geographic area. This would create impacts to sensitive resources beyond what could be predicated from estimates of the effects of any single action.

Alternative B also would result in increases in visitation, but to a lesser extent than under Alternative A. Increases in visitation would further be concentrated in areas away from sensitive biological resources. Recreational restrictions would further lessen impacts. Total impact to biological resources would be far less than under either Alterative A or No Action. Positive cumulative impacts would occur in the form of increased social benefits resulting from improvements in recreation opportunities. Were the proposed action to be implemented as written, the combined effects of a variety of improved recreational opportunities within a small geographic area would produce an overall greater appeal than would occur if the same set of opportunities were distributed over a larger area.

Alternative C would result in increases in visitation similar to increases predicted under Alternative B, however restrictions on human use throughout the CBS would produce a "de facto" sanctuary out of most of the proposed ACEC portion of the CBS. The limitations this alternative would produce would result in a net decline in utility for many of the people that have been, or are likely to be, counted among the recreational constituency of the CBS.

No Action would have a variety of adverse effects on recreational, wildlife and vegetation resources within the CBS. Because of continued habitat fragmentation and repeated disturbance to wildlife, the cumulative adverse effects to biological resources of No Action would be considerably greater than would be predicted under a strictly additive analysis of impacts.

The alternatives affect lands within the boundaries of the Coos River Watershed. None of the alternatives would affect watershed function or associated values. The CBS does not drain into the estuary, but instead acts as an aquifer recharge area. The principal function of the north spit portion of the CBS is as a coastal barrier, and the actions in this document would not affect that function.

Reasonable Foreseeable Future Actions

The most likely reasonable foreseeable future action on the CBS would occur on lands not administered by the BLM, but that would have a direct effect on BLM-managed resources. Roughly 300 acres on the North Spit is zoned for future industrial use and is owned by the State of Oregon and administered by the International Port of Coos Bay. If large scale industrial development occurs on the northern and middle portion of the spit, actions protecting sensitive biological resources further south within the CBS would become relatively more important. Both Alternative B (Proposed Action) and Alternative C contain management scenarios that would ensure the sustainability of the unique biological resources that characterize the CBS.

CHAPTER FIVE

LIST OF PREPARERS

Core Interdisciplinary Team

The following individuals participated on the core interdisciplinary team:

Name	Contributions	Education
Dan Carpenter	Hydrology/Wetlands	BS Soils
Bret Christensen	Wildlife	BS Wildlife, Biology
Thomas Green	Realty	Lake City Ranger School
James Heaney	Threatened and Endangered Species	BS Wildlife Management
Keith Lenard	Recreation/Team Leader	BS Environmental Science MS Land Use Planning and Resource Policy
Larry Mangan	Wildlife	BS Biology Graduate study; Wildlife Management
Bruce Rittenhouse	Botany/ACEC Coordinator	BS Botany MS Plant Ecology
Dennis Turowski	Recreation	BS Environmental Design MS Park and Recreation Resources

Other BLM Personnel

The following Bureau of Land Management personnel provided additional input or assistance to the plan:

Name	Contributions	Education
Lloyd Fritz	Geology	BS Geography BS Geology
Craig Garland	Soils	MS Geology
Kathy Helm	Technical Writer/Editor	Macon Junior College Southern Oregon College Southwestern Oregon Community College

Annette Langenstein	Document Layout/Typesetting	Boise State University
Reg Pullen	Cultural	BA English MA Anthropology and Fisheries
Billy Ray Vaught	Cartography	AS Drafting Technology BS Forest Management AS Civil Engineering
Steven Morris	Environmental Coordinator	University of Houston Southwestern Oregon Community College

Other Assistance

Additional expertise was provided by the following non-BLM individuals:

Name	**Agency/Organization**
Joe Burns	U.S. Fish & Wildlife Service
Mike Graybill	South Slough Sanctuary
Janet Hodder	Oregon Institute of Marine Biology
Carey Smith	U.S. Fish & Wildlife Service (Joint Venture)
Mark Stern	The Nature Conservancy
Larry Thornburgh	Audubon Society
Dan VanDyke	Oregon Department of Fish and Wildlife

CHAPTER SIX

DISTRIBUTION OF DRAFT PLAN AND EA

Copies of the Draft Coos Bay Shorelands Plan and Environmental Assessment are being distributed to the following agencies and organizations:

American Fisheries Society
American Rivers
Association of Northwest Steelheaders
Audubon Society (Kalmiopsis and Cape Arago Chapters)
Bay Area Chamber of Commerce
City of Coos Bay
Coast Range Association
Confederated Tribes of the Coos, Siuslaw and Lower Umpqua
Coos County Planning Department
Coos County Commissioners
Coos County Historical Society
Coos Head Naval Detachment
Defenders of Wildlife
Ducks Unlimited
Environmental Protection Agency
International Port of Coos Bay
Izaak Walton League of America
Natural Resources Defense Council
National Wildlife Federation
Native Plant Society of Oregon
The Nature Conservancy
North Bend Garden Club
The Oregonian Newspaper
Oregon Governor's Office
Oregon Institute of Marine Biology
Oregon Off-Highway Vehicle Association
Oregon State Lands
Oregon Economic Development Council
Oregon Coast Sportsmen's Council
Oregon Department of Environmental Quality
Oregon Department of Geology and Mineral Industries
Oregon Department of Land Conservation and Development
Oregon Department of Fish and Wildlife
Oregon Department of Transportation, Aeronautics Division
Oregon Department of Parks and Recreation
Oregon Historical Society
Oregon Kayak and Canoe Club
Oregon Natural Resource Council
Oregon State Marine Board

Oregon State Parks Department
Oregon State University Department of Botany
Pacific Fisheries Enhancement
Pacific Northwest 4WD Association
Sierra Club - Northwest Regional Office and the Oregon Chapter
South Slough National Estaurine Reserve
Southwestern Oregon Community College
State Historic Preservation Office
The World Newspaper
The Trust for Public Lands
U.S. Environmental Protection Agency, Region 10
U.S.D.I. Bureau of Indian Affairs
U.S. Fish and Wildlife Service
U.S. Congress - Rep. Peter DeFazio
U.S. Corps of Engineers
U.S. Senate - Senator Mark Hatfield and Senator Bob Packwood
U.S. Department of the Interior - Regional Environmental Office
Weyerhaeuser
Wildlife Management Institute

Copies of the Coos Bay Shorelands Plan and EA were also distributed to approximately 200 individuals interested in Coos Bay Shorelands management. In addition, copies of the CBS Plan and EA will be available at local libraries for public review. Copies are also available at the Coos Bay District Office.

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APPENDIX A - LITERATURE CITED

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APPENDIX B - CONSISTENCY WITH STATE AND FEDERAL LAWS

CONSISTENCY STATEMENT

Introduction

BLM administers approximately 1,600 acres in the Coos Bay Shorelands (CBS). Lands are located in T.25S., R.13, 14W., and T.26S., R.14W., Will. Mer. This statement validates BLM land management objectives, as stated in the Draft CBS Plan, as being consistent with objectives of the state and county jurisdictions.

In addition, the alternatives mentioned within this document are in conformance with the Management Framework Plan (MFP) as analyzed in the *South Coast-Curry Timber Management Environmental Impact Statement* (BLM, 1981), its Record of Decision (BLM, 1983), and the North Spit Plan Amendment (1984), both supplemented by the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* and its Record of Decision (Interagency, 1994).

Compliance with Coos County Zoning and Land Development Ordinance

In Section 1.1.200 of the Coos County Ordinance, three of the top eight purposes for the Ordinance are: "1) *Protecting and enhancing the environment...2) conserving natural resources...[and] 3) encouraging the most appropriate use of land.*" BLM is meeting these purposes in its management of the Coos Bay Shorelands.

Lands administered by BLM on the North Spit have four zoning designations. They are:

Conservation Shorelands: The purpose of the "CS" zoning district is for the allowance of existing uses, development of recreation facilities, and protection of the existing Heron Rookery. BLM is meeting this purpose by managing these areas to conserve resource values and encourage the most appropriate use of the land. The Management Actions, identified in the Draft CBS Plan by Alternative, pertaining to BLM lands within the "CS" zoning district are either permitted outright or by conditional use.

Recreation: The purpose of the "REC" district is to accommodate recreational use of areas with high recreational or open space value. BLM is consistent with this purpose in managing these lands for the most appropriate use. The Management Actions, identified in the Draft CBS Plan by Alternative, pertaining to BLM lands within the "REC" zoning district are either permitted outright or by conditional use.

Natural Shorelands: The purpose of "NS" district designation is to conserve and enhance habitat resources. As mentioned above BLM is meeting this purpose by "Protecting and enhancing the environment" and "conserving natural resources." The Management Actions, identified in the Draft CBS Plan by Alternative, pertaining to BLM lands within the "NS" zoning district are either permitted outright or by conditional use.

Water-Dependent Development Shorelands: The purpose of "WD" district designation is to manage these lands for water-dependent or related commercial/industrial development. The BLM has and will continue to meet this purpose on these lands consistent with the "encouragement of the most appropriate use" for said lands. The Management Actions, identified in the Draft CBS Plan by Alternative, pertaining to BLM lands within the "WD" zoning district are either permitted outright or by conditional use.

Compliance with Oregon Coastal Management Program

"The objectives of the OCMP are to develop, implement, and continuously improve a management program that will preserve, develop and restore the natural resources of the coastal zone."

The attached Draft CBS Management Plan and Environmental Analysis provides recommended management actions that are similar to the state's (listed below) objectives and activities for coastal areas:

- Create and maintain a balance between conservation and development, and between conflicting public and private interests, that will assure the greatest benefits to this and succeeding generations of Oregonians;
- Guide public and private uses of natural resources of the coastal zone to avoid irreversible damage;
- Protect the unique character of life on the coast; and
- Manage the natural resources and uses of the coast on an evolving and flexible basis so that as experience with and knowledge of the coastal zone increases, the program can be revised accordingly.
- Establish a working partnership between local, state and federal governments which ensures coordination of coastal management planning and administration.
- Encourage research on coastal resources to provide a sound data and information base for planning and management decisions.
- Ensure through substantive citizen participation incorporation of the public interest during the development of comprehensive plans.

BLM is managing a portion of the CBS as a "*special area*," with a designation of *Area of Critical Environmental Concern*. Section 303(3), of the Coastal Management Program, encourages the preparation of special area management plans which provide for "***increased specificity in protecting significant natural resources...***". Through this plan and EA, BLM is in compliance with this state requirement.

The top priority for the use of Oregon's estuarine and coastal shoreland resources are protection of coastal resources and uses that maintain the integrity of estuaries and coastal waters. The federal *Coastal Zone Management Act (CZMA)* requires that federal projects and "***activities directly affecting the coastal zone shall be conducted in a manner which is, to the maximum extent practicable, consistent with approved state management programs (Section 307 (c)(I),(2)).***"

All Alternatives in the attached Draft CBS Plan/EA follow this mandate and the following Statewide Planning Goals:

State Planning Goal 5 (Natural Resources): This goal requires appropriate planning for and protection of important natural, ecological, historical, and scenic sites based on an analysis of economic, social, environmental and energy consequences of alternative uses.

State Planning Goal 8 (Recreational Needs): Required to satisfy, by planning, the recreational needs of citizens of the state and visitors, both now and in the future.

State Planning Goal 16 (Estuarine Resources): Recognizes the need to protect unique environmental, economic and social values of the estuary and associated wetlands and, where appropriate, to develop and/or restore these resources.

State Planning Goal 17 (Coastal Shorelands): Requires protection, and where appropriate, development and/or restoration of the resources and benefits of coastal shorelands to include water quality, fish and wildlife habitat, water-dependent uses, economic resources and recreation and aesthetics.

State Planning Goal 18 (Beaches and Dunes): Shall conserve, protect, where appropriate develop, and where appropriate restore the resources and benefits of coastal beach and dune areas.

Based on the above analysis, it has been determined that the Draft CBS Plan and EA has been written to be consistent to the maximum extent practicable with the *Oregon Coastal Management Program*, the *Federal Coastal Management Act of 1972*, as amended, and the *Coos County Zoning and Land Development Ordinances*.

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